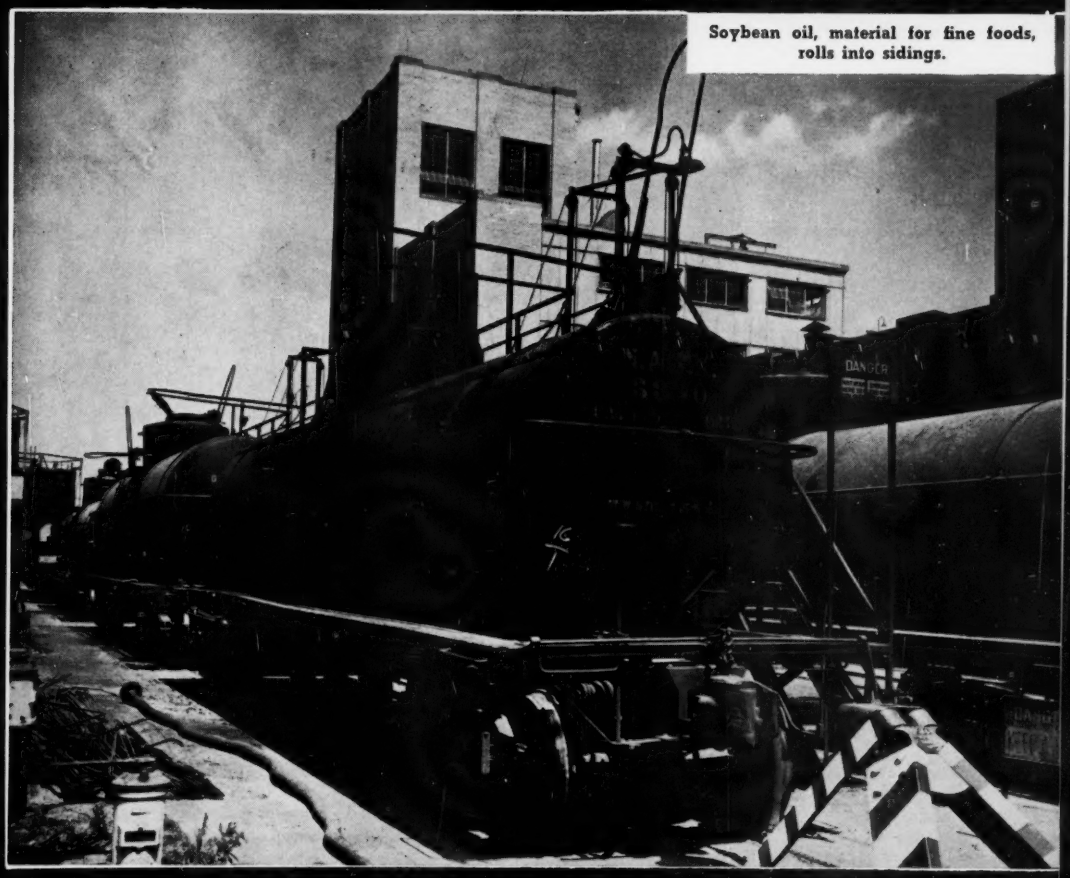
THE Soybean Digest



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AMERICAN SOYBEAN ASSOCIATION

VOLUME 12 • NUMBER 4 • DECEMBER • 1951

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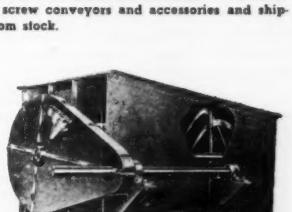

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EDITOR'S DESK

This Is a Job for the Grower

We have said on these pages repeatedly that the present soybean grading standards are unfair, that they do not reward the careful producer, but that they do subsidize the inefficient grower. That statement is even more true today. The federal grades need changing.

In September of 1950 the American Soybean Association went on record by resolution requesting changes in the foreign material and moisture requirements in the federal grades. As a result of our request public hearings were held by the grain grading section, Grain Branch, Production and Marketing Administration. Your Association had representatives present at each hearing to testify.

Opposition was voiced by grain handlers, both local and terminal. Support was offered by soybean processors. Because the opposition made itself heard so loudly, and because support for the changes was offered less vocally, the Grain Branch officials had little choice but to maintain the existing standards. That they decided to do.

A similar resolution was adopted by the 1951 convention, again pointing out the injustice of present standards, and suggesting that changes were in order. We could ask for another series of hearings, which would probably be granted. However, it has not appeared practical to do so.

The opposition has not changed. In the present standards there is opportunity for grain handlers to make money. Average country run soybeans reach the local buyer at something less than 2 percent foreign material, on the average. Some come to the country station with less than 1 percent. There is opportunity for blending.

Under the present standards it is not necessary for the local buyer to grade each load, for there is plenty of tolerance. A minimum of work and effort are now required. The local buyer soon arrives at the local average for the crop, does his buying on that basis.

Under the present system no one loses—except the grower. On the basis of $3 soybeans the good producer is sacrificing as much as 18 cents per bushel. If he brings 1 percent foreign material beans to town he takes a loss of 2 percent, or 6 cents per bushel. If he brings 10 percent moisture soybeans he sacrifices 4 percent weight, or 12 cents per bushel.

On the present basis there is no incentive for farmers to do a good job. The recleaners or weed screens have been taken off the combines. The machine is started up an hour or two earlier in the morning. Why sacrifice weight? Take smaller returns for the crop? Only a foolish man would do so over a period of time.

The standards need to be changed. The ultimate goal should be some basis of buying such as suggested by Dr. V. I. West. No such system will be adopted until growers demand it—and demand it so loudly that they cannot be turned down. No one else in the industry will push it. Grain buyers will oppose it. Even grain cooperatives, who supposedly represent farmers, have been opposing it. We doubt if such drastic changes can be made all in one step.

There are two courses. Either we must all make up our minds to market 3 percent foreign material and 14 percent moisture, or we must demand and support through ASA, farm organizations and other groups, equitable changes in the present soybean grading standards. We still favor the latter.

A Year for Careful Watching

This may well be the year when long-time storage of soybeans does not pay. Time will tell. But most certainly there will not be the normal spread between harvest-time prices and spring prices.

Soybean oil meal is selling at ceilings now. Supplies are largely sold through January at the present time. Prices cannot go higher, at least there is no indication of relaxation of ceilings at this time.

Soybean oil prices have been working downward, rather than upward. There is little to indicate any price rises in coming months. Cottonseed oil supplies will reach the markets over a longer period of time this year, because of the larger crop and the much larger production in the western sections, where crushing capacity is limited. It is doubtful if exports of soybean oil will reach last year's proportions, for much of those exports went into the Mediterannean area to replace the extremely short supplies of olive oil. This year there is a good olive crop in those countries.

Soybean prices are hanging below ceilings—but only a relatively short way below. They could work up another 30 cents per bushel at this writing. Today they are selling at prices which barely permit operation of expeller plants. Only by getting more for their products can those plants pay more. That seems unlikely, as outlined above.

It's a year for careful watching! The big price increase has taken place for this year. This might be the year when prices move down.

Tells Your Feeding Story

The new booklet on livestock feeding, titled "Livestock Feeding—1952" prepared by the Association, has just come from the presses. Copies are available to local feed dealers, processors, elevators, other interested organizations. See the ad in this issue.

This booklet is a part of an over-all campaign to merchandise the products of soybeans. When preparation was started last summer it appeared that soybean oil meal was going to be in plentiful supply, and that promotion of markets was going to be needed. There are no plentiful supplies of soybean oil meal now, for it is too cheap as compared with other protein meals. Every bag has a buyer waiting for it.

Brought together in this booklet is the very latest information on proper feeding practices, vitamins, antibiotics, proteins, minerals and other factors. Carefully checked by several research men in each field, it is authentic. It is written in simple language. It is classified by livestock groups.

We recommend it to you for careful reading, and for distribution to feeders, Future Farmer members, 4-H Club members, night schools, veterans classes. If you are a seller of soybean oil meal we suggest that copies would be a good investment.

To all our readers and friends in the industry: we wish you Christmas cheer and the very best for 1952.—Soybean Digest staff.

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GROWERS

Miss. Planting Date

Soybeans planted during May have surpassed earlier plantings in seed yield and seed quality, and have shown a definite advantage in rate of growth in Mississippi, according to the annual report of the Delta Branch Experiment Station, at Stoneville, Miss. The practical advantage of rapid early growth is in weed control. Under most conditions, soybean planting should be delayed until after cotton is planted. Excellent yields have been obtained from plantings made as late as June 20.

Planting adapted varieties during May in rows closer than the conventional 36- to 40-inch rows has not resulted in increased seed yields at the Delta Station. In fact, seed yields have been reduced by planting in 24- to 28-inch rows.

Excellent yields can be expected from soybeans grown on Sharkey Clay soils. The strain D623-9, which matures about Sept. 20, has given a two-year mean yield of 49 bushels per acre on a Sharkey Clay soil as compared to 38 bushels per acre on a Bosket Fine Sandy Loam. The Ogden variety, which matures about Oct. 10, has given quite comparable seed yields on the two soil types.

Defoliants cannot be utilized profitably on soybeans, according to the Delta Station report. The yield of Ogden soybeans defoliated three weeks preceding normal maturity was reduced by 30 percent. Plants were ready for combining three days earlier than those reaching normal maturity. On plots defoliated two weeks previous to maturity, maturity was not hastened but yields reduced 17 percent.

Soybean varieties giving best results are S-100, Ogden, and Roanoke, which will be ready for combining by Sept. 20, Oct. 10, and Oct. 25, respectively, if planted before May 25. The S-100 variety does not give as good ground cover as Ogden and, therefore, should be grown on rather clean land. Yields of S-100 have averaged 80 to 85 percent of those for Ogden. The Roanoke variety gives seed yields comparable to Ogden, but surpasses Ogden in seed-holding and oil content.

A breeding program is in progress to develop superior varieties for Delta conditions. Strains of S-100 maturity have surpassed S-100 in seed yield, seed quality and oil content. They have also surpassed Ogden in ground cover during the growing season and in dryness of stems at maturity.

In North Carolina

Oland Peele, nationally known breeder of Berkshire hogs at Nahunta Farm, Pikeville, N. C., is a leader in the diversified farming program of eastern North Carolina as well as being a hog breeder.

For four years Peele has held the title of outstanding Berkshire breeder of North and South Carolina. But Nahunta Farm in addition to hogs, produces tobacco, cotton, corn, potatoes, vegetables, fruit and soybeans. Flue-cured tobacco is his major crop.

Says Peele: "Most of our soybeans are grown following the harvesting of small grain in the summer. This doesn't always prove satisfactory because quite often our driest season comes while the beans are maturing, causing low yields.

"This summer has been extremely dry since July and soybean production in this area will be the poorest in years. When we fail to produce enough beans to combine we sometimes cut the stalks and use them for hay. Other times they are left on the land to be turned under.

"Since we can double-crop our land with small grain fall-planted and soybeans the following summer, it isn't necessary to get a high yield in order for this crop to be worthwhile.

"However, all soybeans are not planted in this manner in our territory. A normal crop when planted as a single crop usually runs around 25 to 30 bushels per acre. Sometimes these are drilled and sometimes they are planted in rows."

An Alabama Crop

Soybeans have been an important cash crop in Baldwin, Escambia and Jackson Counties, Ala., for several years, according to J. C. Lowery, extension agronomist.

In these areas soybeans are grown after early truck crops or lupine harvested for seed. Processing, storing and marketing facilities have been established to handle the crop. Yields of 20 to 40 bushels are not uncommon.

Several other sections of the state are now successfully producing cash soybeans.

Circular 392, Soybeans in Alabama, may be obtained from the extension service of Alabama Polytechnic Institute, Auburn, Ala.

—sbd—

THE COVER PICTURE

Soybean oil, a leading national food fat, has become a big prop to the national economy. Leading uses are vegetable shortening, margarine and salad oils. Here soybean oil rolls into the plant sidings of a major manufacturer of shortening and margarine, in tankcars loaded in 64,000-pound quantities.

Oil is to be pumped into the refinery through hose connections beneath the cars.

Photo is courtesy of Lever Bros. Co.

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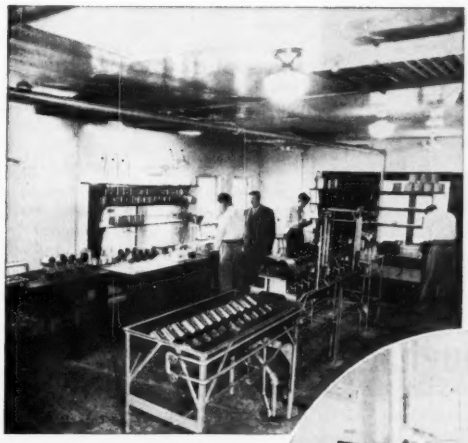

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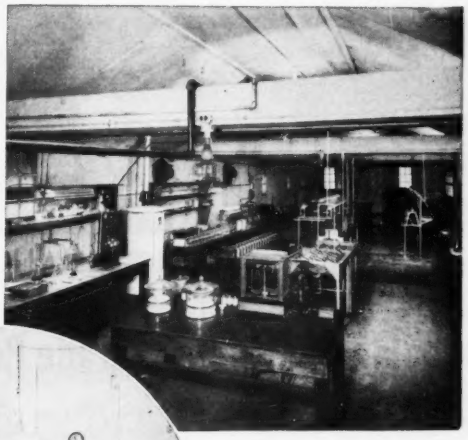

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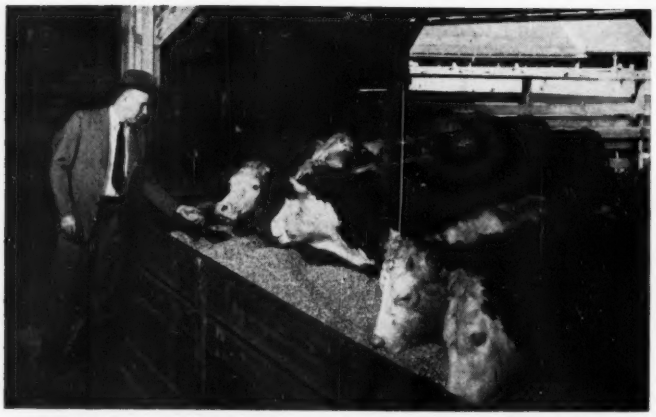

Dr. W. M. Beeson, Purdue University, and steers on ground corncobs. With the present narrow margins on beef cattle, utilization of all roughages becomes highly important.

Supplement for Low-Grade Roughages

In the next decade or two, improvement in the efficiency of beef production will come primarily through learning how to convert high cellulose feeds such as soybean straw, oat straw, cornstalks, cottonseed hulls, corn silage and grass silage into a highly efficient growing ration, say feed men at Purdue University.

They report an experiment on the usage of such common farm feeds in wintering steers.

"Today a new concept is being developed in the feeding of cattle which is based on the evidence that in order to properly feed ruminants on roughages, such as corn silage, a supplement must be designed to contain adequate nutrients to nourish the billions of bacteria in the rumen or paunch of cattle, so the indigestible roughages can be broken down into a usable form," state W. M. Beeson, T. W. Perry, C. H. Nickel and W. M. McVey, the authors.

"It appears we have only scratched the surface in exploring the possibilities of converting roughages and corn into beef. No doubt the same principles can be used in making more efficient use of many other roughage feeds such as sweet corn refuse, pea vine silage, citrus fruit refuse, sorghum silage and dry range forage.

"It was felt that a re-evaluation of common farm roughages, when fortified to make good their nutritional deficiencies, was worthwhile." In the experiment four roughages—soybean straw, corn cobs, corn silage and grass silage—were fed as the sole roughage to four groups of steers. The steers received Purdue Cattle Supplement A, which is composed of soybean oil meal supplemented with molasses feed and vitamin A and D concentrate, and were given free access to a mineral mixture.

Eighty steer calves from Nebraska and Montana averaging 480 pounds in weight were used in the experiment, which lasted 147 days.

Greatest average daily gain and total gains were made from corn silage with grass silage second. Corn cobs were superior to soybean straw both in daily gain and cost of gain.

Corn silage was also lowest in cost of feed per pound of gain, with corn cobs second. It cost more than twice as much to produce a pound of gain on soybean straw as on corn silage.

"When properly fortified, gains exceeding two pounds per day can be made with steers fed either corn silage or grass silage as the only source of roughage," state the authors.

"Contrary to popular opinion, steer calves can be grown out at a rapid and efficient rate *without the use of a dry roughage in the diet* when either corn silage or grass silage is properly balanced. No scouring or 'looseness' occurred among the silage-fed steers.

"With this supplemental feeding program, corn silage produced 1,676 pounds of beef per acre and grass silage produced 1,432 pounds of beef per acre."

For complete report of this experiment write for GRASS SILAGE, CORN SILAGE, GROUND CORN COBS AND SOYBEAN STRAW AS SOLE SOURCES OF ROUGHAGE FOR WINTERING STEERS AH-59. By W. M. Beeson, T. W. Perry, C. H. Nickel and W. M. McVey. Purdue University, Lafayette, Ind.

PURDUE CATTLE SUPPLEMENT A.

	1000 Lb. Mix	Per Steer, Daily
	lb.	lb.
Soybean Oil Meal	643.1	2.25
Molasses Feed (45% Molasses)*	285.8	1.00
Bonemeal	51.4	.18
Salt	17.2	.06
Vitamin A Concentrate†	2.5	.01
TOTAL	1000.0	3.50

MINERAL MIXTURE:
The steers were given free access to a mineral mixture composed of two parts of steamed bonemeal and one part iodized salt, which was fortified with one ounce of cobalt sulfate per 100 pounds of salt. In addition the steers had free access to plain loose salt in another box.

* "Arcady Sweet Mixing Feed," Arcady Farm Milling Co., 223 Jackson Blvd., Chicago 6, Ill.
† "NOPCO XX" - 2250 A - 400 D per gram fortified cod liver oil. NOPCO Chemical Company, Harrison, New Jersey.

Antibiotics for Calf

Are antibiotics of value to dairy calves? Do they produce growth gains similar to those in pigs and chickens?

Results at Cornell University, Iowa State College and Louisiana State University would indicate they are of value. But experiment stations apparently are not yet making definite recommendations for their use in dairy calf feeding. Aureomycin was used in all three experiments.

At Cornell the calves getting the antibiotic supplement made significantly greater gains than those not receiving the antibiotics. They consumed more concentrate but required less total nutrients to produce a pound of gain. The antibiotic-fed calves were also less addicted to scours.

At Iowa State College aureomycin-fed calves were superior to the controls in weight gains and physical appearance.

At Louisiana State University aureomycin produced a growth stimulation as high as 25 percent in Jersey calves and 15 percent in Holstein calves. Its use apparently cut down on scours.

Experiments with a terramycin supplement in feeding dairy calves at the University of Arkansas are in

FEEDING

progress but a complete report is not yet available.

The experiments were reported in the June 1951 issue of Journal of Dairy Science.

B-12 and Antibiotics

Evidence continues to pile up that B-12 and the antibiotics put fast gains on pigs and make possible the feeding of a higher level of plant proteins.

At the Oklahoma Agricultural Experiment Station the feeding of the B-vitamins including B-12 and aureomycin to lactating sows apparently provided considerable protection against infectious diarrhea.

In another experiment the feeding of aureomycin, streptomycin, penicillin and sulfathalidine had a beneficial effect on digestive disturbances in unthrifty pigs. But the addition of aureomycin to an adequate ration for healthy pigs during growth and fattening did not significantly improve their performance.

When a low-protein all-plant supplement was supplemented with a combination of amino acids, methionine and lysine, and a commercial B-12 and antibiotic supplement and fed to weanling pigs the results were about as good as when the plant proteins were supplemented with the animal protein casein.

For full reports of these and a number of other feeding tests write for Miscellaneous Publication No. MP-22, FEEDING AND BREEDING TESTS WITH SHEEP, SWINE AND BEEF CATTLE, Progress Report 1950-1951. Oklahoma Agricultural Experiment Station, Stillwater, Okla.

New Ohio Bulletin

A new 72-page bulletin, Soybean Oil Meal for Pigs, has been brought out by the University of Ohio. It is a sequel to the earlier Ohio Bulletin 452, Soybeans and Soybean Oil Meal for Pigs.

The author, W. L. Robison, has been carrying on experiments with soybean oil meal as a protein concentrate for growing and fattening pigs since 1916.

The investigations conducted by him during the 34 years and reported in the bulletin cover 42 dry lot and 12 pasture experiments, with 291 groups and a total of 3,269 pigs!

Experiments included in the bulletin:

1—Comparisons of soybean oil meal and soybeans in feeding pigs.

2—Comparisons of soybean oil meal made by different processes.

3—Trials of various materials for and methods of improving a ration of yellow corn, soybean oil meal, ground alfalfa, minerals and irradiated yeast for pigs in dry lot.

4—Comparisons of soybean oil meal and other concentrates.

SOYBEAN OIL MEAL FOR PIGS. Research Bulletin 699. By W. L. Robison. Ohio Agricultural Experiment Station, Wooster, Ohio.

Bulletin on Minerals

A new bulletin on minerals in livestock feeding has been issued by the University of Illinois. It lists the minerals needed by livestock, signs of mineral deficiencies and describes the use of mineral supplement.

A mineral map of the U. S. will indicate to you whether you may be in a mineral-deficient area.

MINERALS IN LIVESTOCK FEEDING. Circular 688. By H. H. Mitchell, professor of animal nutrition, University of Illinois, Urbana, Ill.

—ibd—

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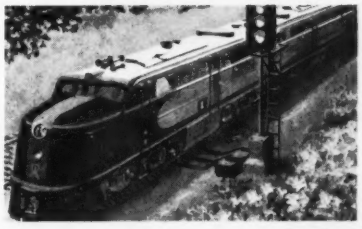

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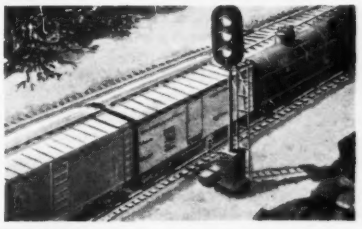

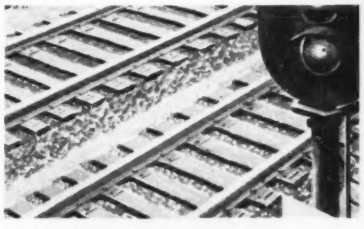

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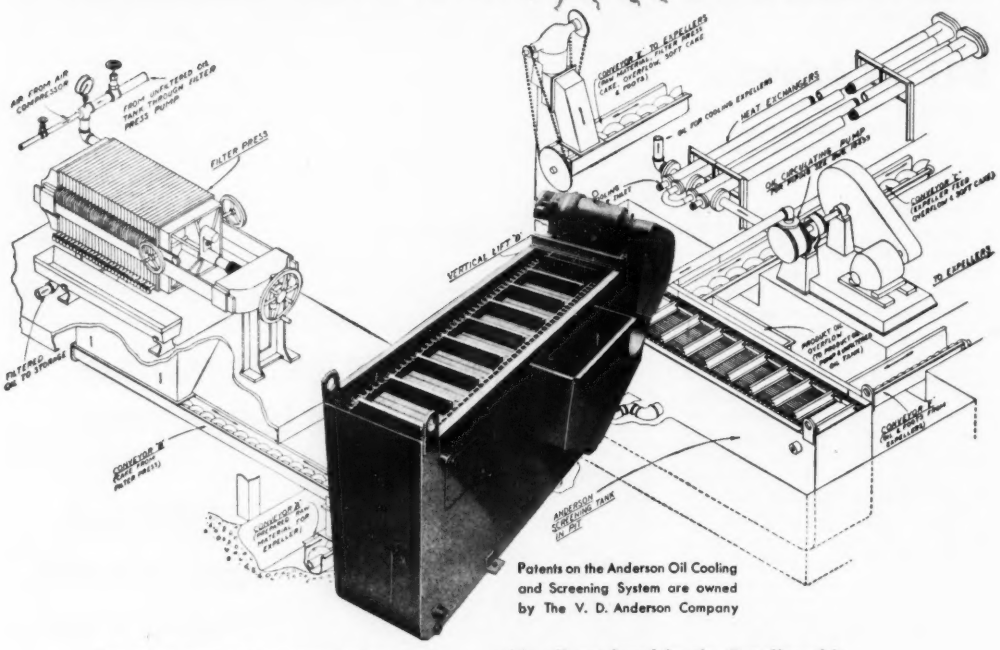

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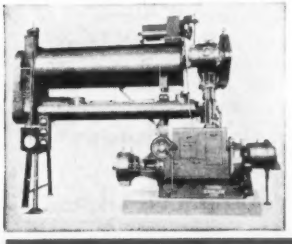

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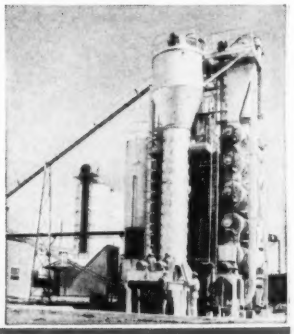

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Effects of Neutron Irradiation on Soybeans

Plant breeders are now testing the possibilities of atomic energy for producing new varieties of soybeans

The leaves on this plant were very wrinkled and very dark in color. This plant produced a good crop of beans.

What happens to the resulting plants when soybean seed is placed on an atomic bomb pile? Here is one result, leaves that are wrinkled, elongated and recurved. But this plant also made a good crop of beans.

By L. M. HUMPHREY

Robert L. Dortch Seed Farms, Scott, Ark.

The plant breeder's progress is made possible by having in his hands as much diversity of material as possible even though this diversity may be directed along certain paths. In naturally inbred crops, such as the soybean is, his best and most widely used method of obtaining diversity is by crossing differing types. Much segregation takes place in the early generations particularly the F_2 and F_3, giving the desired diversity of material from which to select.

In 1948 we decided to try neutron irradiation of seed to obtain gene mutations or other types of mutations, and thereby increase the diversity of material in our soybean breeding nursery.

Two half-pound samples of seed were sealed in Pliofilm bags and sent to Oak Ridge, Tenn., where they were placed on an atomic bomb pile until 1000 and 1500 roentgens of neutron irradiation respectively had passed through the samples. In 1950 this procedure was repeated but the dosage increased to 2500 roentgens and 3500 roentgens.

The seed irradiated in 1948 were planted that spring. No effect from the irradiation was observable. Seed were harvested from the 1948 crop and planted in 1949. A few gene mutations were observed in this second generation as might be expected. Such mutations are usually recessive and do not show up until both recessive genes get together. The mutations consisted of white, yellow and pale green plants. Only one of the yellows reached maturity and matured seed. It has subsequently bred true.

The seed irradiated in 1950 were planted that spring. This material differed from the first generation of

seed which had received 1000 r and 1500 r in that an immediate effect was observable. The young plants had a grayish cast, veination of the leaves was very coarse and the leaves were somewhat rugose. As the plants grew they turned a very dark green but retained their rugoseness. The seed which had been irradiated were from a line selection from Dortchsoy 2 which matures about Oct. 8. The plants from the seed receiving 2500 r matured approximately on Oct. 28, and those receiving 3500 r matured about Nov. 12. These changes in the appearance of the leaves and the lateness of maturity were probably caused by cytoplasmic changes induced by the very severe dosage of neutron irradiation.

In the second generation 4200 plants were grown from seed harvested in 1950. Two hundred and twenty-eight plants were definitely mutations and many more were probably affected in one way or more. The remaining plants were entirely normal. The following mutation types or "Atomics" as we call them were observed:

White
Yellow
Virescent
Pale Green
Brachitic
Semi-Brachitic
White Bloom (Mutation from purple)
Long Internode
Sterile
Semi-Sterile
Extreme Earliness of Maturity (Photo)
Medium Early
Late Maturity
Rugose Leaf (Photo)
Rugose Elongate Leaf (Photo)
Glabrous Leaf

There are a number of other leaf variations hard to describe. All variations must be ascribed to irradiation effects because the seed originally irradiated as mentioned above, were from a very pure line selection which never shows any variation.

The real purpose of this irradiation work was to attempt to produce some new characters usable in the breeding program. Whether any characteristic will be of value cannot be stated at this time. There are seven plants in the 4200 that show a marked increase in vigor over the normal plants. However, only future performance will determine whether this greater vigor is a genetic change or merely the result of soil variation.

This second generation plant matured extremely early. The pods had reached this stage of maturity when normal Dorichsoy 2 plants were just starting to bloom.

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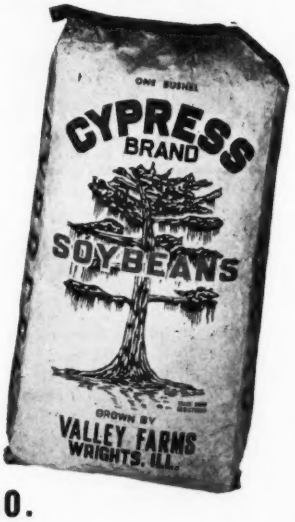

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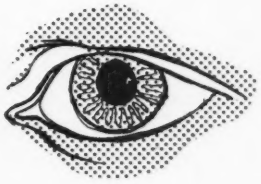

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These pigs consumed a typical corn-soybean oil meal ration supplemented with vitamin B-12 and an antibiotic. The growth rate and economy of gains were not improved by replacing soybean oil meal protein with an animal protein.

Feeding Value of Soy Proteins

By A. G. HOGAN

Department of Agricultural Chemistry, University of Missouri. From his talk before conference of processors and agronomists at Minneapolis, Minn.

THERE ARE two characteristics of the soybean that are of special interest to the soybean processor. The first is a high percentage of protein. The distribution of the essential amino acids is the important thing about a protein, and a number of workers have published amino acid assays of this product.

It would be sufficient to say that soybean proteins compare favorably with any protein in commercial use except that they are slightly deficient in the sulphur-containing amino acids, methionine and cystine. Fortunately, the proteins of corn are fairly high in these two amino acids and a combination of corn and soybean oil meal is a better source of methionine and cystine than is soybean oil meal itself.

In addition, the better quality tankage is a fair source of the sulphur-containing amino acids; and under these circumstances, a combination of tankage and soybean oil meal is a better source of these two amino acids than is soybean oil meal alone.

The other constituent of soybeans that is of most interest to the processor is the high content of soybean oil. The special properties of soybean oil make it useful for a number of industrial applications. But these same properties make it unsuitable in feeds for livestock, at least for swine. If a large quantity of soybeans is fed to swine, soft pork is one of the consequences.

The feeder of soybeans or soybean products has some interest in the mineral constituents of soybeans and as would be expected, soybeans are not a good source of calcium, and they are markedly deficient in chlorine. However, these deficiencies are easily remedied and are of no great consequence.

Phosphorus

The supply of phosphorus might seem adequate, except that a portion is present as phytin, which is only partly available. The committee on animal nutrition of the National Research Council recommends that rations for growing chicks contain 0.6 percent phosphorus, for laying hens, 0.75 percent. They also recommend that rations contain at least 0.4 percent inorganic phosphorus. It would seem advisable therefore to include about 0.2 percent mineral phosphate in poultry rations when soybean oil meal is the only protein supplement.

The first investigators who made a study of the feeding value of soybeans reported that the raw bean is a poor source of protein. They also reported that when heat was applied to the beans, their feeding value was greatly improved. Some years later, it was shown that a deficiency of cystine accounted for at least part of the low feeding value of the soybean. Probably the contribution of most practical importance was made by Hayward, Steenbock, and Bohstedt who made it clear that the higher nutritional value of heated soybean oil meal was not due merely to greater palatability. The fact was the raw soybean protein was nutritionally defective, and heating some way remedied that defect. They reported that expeller meal, heated at 150° C. for two and one-half minutes, had exceptionally high biological value.

A few months later, this same group of investigators made another important contribution. This would

seem to show that when soybean oil meal is heated, the cystine in the protein was made more available. Raw soybean protein, then, could be improved by either of two methods. If the protein was heated the cystine became more available. Or if the amino acid cystine was added to the raw protein, the biological value of the supplemented protein was increased. We know now that the addition of methionine is equally effective.

Methionine

As to the possibility that heated soybeans, or heated soybean oil meal, may be deficient in methionine, there are some discrepancies. Most investigators in this field have reported that even when soybean oil meal is properly heated, it is still slightly deficient in methionine. Other investigators, however, have reported that the feeding value of the protein was not improved by additions of sulphur-containing amino acids. We, ourselves, have obtained an excellent rate of growth with weanling pigs without adding methionine to the ration. It would seem that with modern meals at least, prepared according to the best information we now have, soybean oil meal is not seriously deficient in any amino acid.

If we examine the earlier reports on practical feeding trials, with soybean oil meal, we see there was considerable variability. As a rule, the agricultural experiment stations reported that as a protein supplement for hogs soybean oil meal was inferior to tankage, also to other protein supplements of animal origin. It is worth mentioning, though, that in some investigations, notably by Robison of Ohio, the growth rate of pigs on soybean oil meal rations was fully equal to that obtained on tankage rations. It should be mentioned, though, that in most swine feeding tests conducted a few years ago, modern knowledge would indicate that the rations were deficient in some of the vitamins. At any rate, when compared to modern standards, the pigs grew so slowly on all experimental rations that it would be impossible to draw definite conclusions as to the biological value of any of the proteins.

In the early days, poultrymen also were having trouble with soybean oil meal. Several investigators reported that when hens consumed a corn-soybean oil meal ration, the death rate in chick embryos was unduly high in the second week of incubation, and perosis in the chicks that hatched was increased. The results were excellent when animal proteins were included in the ration, and it was agreed that soybean oil meal was inferior. It was assumed at the time that the animal proteins were superior because the amino acids they contained were better balanced, but we now know that as a rule the amino acids of soybean oil meal are equally well balanced. It was concluded, then, that the peculiar nutritional value of animal proteins was due to a vitamin which was associated with the protein, and it was called the animal protein factor.

The story will not be pursued further, but it is the general opinion now that vitamin B-12 is the animal protein factor. When soybean oil meal proteins are supplemented with vitamin B-12, they are little, if at all, inferior to the proteins of tankage. When another addition of antibiotics is also made, it frequently happens that again there is a definite acceleration in the rate of growth and a definite decrease in the amount of feed required per unit gained.

There is no doubt that when properly prepared and supplemented with vitamin B-12 the feeding value of the soybean protein is greatly increased. We would like to know, though, how good it is as a commercial protein supplement. We know that it has some weaknesses; for example, it contains little or probably no vitamin B-12. In addition, it may be slightly deficient in methionine, though under most conditions this deficiency is not serious. In our own experience, we have a small flock of experimental hens which receive no protein but soybean oil meal and their productivity, the hatchability of their eggs, and the viability of the chicks is exceptionally good. We have supplied baby chicks with high energy diets that contain no protein except soybean oil meal, and the growth rate has been exceptional.

We have supplied brood sows with practical rations which contain soybean oil meal as the only source of protein. The sows were in pens with cement floors and never had access to the soil. In the spring of 1950 the results were the best we have ever had. The rations and the results are shown below.

Ration Number	353	354
Yellow Corn	70.5	70.0
Soybean oil meal	25.0	25.0
Alfalfa meal	2.5	2.5
Mineral mixture	2.0	2.0
Vitamin B-12 conc.		0.5
Vitamins per lb. of feed		
Riboflavin	3.7 mg.	
Ca-pantothenate	18.5 mg.	
Nicotinic acid	12.5 mg.	

The results are shown below

	353	353 + green rye	354
No. of litters	5	5	5
Pigs per litter	6.8	9.4	8.0
Pigs weaned per litter	6.2	9.4	7.8
Weight at 8 weeks, lbs.	35.9	37.7	37.7

We have just finished a feeding

(Continued on page 20)

Soybean-Oil-Meal-Fed Champion

—Photo by Grundy (Ia.) Register

This soybean-oil-meal fed calf won the grand championship at the Grundy County, Iowa, fair this year. Calf was put on feed Jan. 1, receiving a ration of two-thirds ground corn, one-third oats and one pound of soybean oil meal, which was gradually increased to two pounds daily. A small amount of alfalfa hay was fed for the first 150 days. The calf averaged better than two pounds gain per day and weighed 930 pounds when it won the grand championship. Holding the calf is its proud owner, Barbara Brown.

THE PROCESSOR'S INTEREST *in Soybean Production*

By DWIGHT L. DANNEN

Dannen Grain & Milling Co., before Nebraska Soybean Conference, Fremont, Nebr.

THE FIRST OBVIOUS reason for a processor to be interested in soybean production is that he has to have 'em to run his plant. Processors have been carrying on soybean acreage promotion work since the inception of the industry. That's why this is sort of a homecoming for me, because it was just 12 years ago that I helped put on the first soybean conferences in the state of Nebraska.

Chet Swinbank's predecessor, Glen LeDoiyt, K. E. Soder, agricultural agent of the Rock Island, someone from the college at Lincoln, an International Harvester man who showed a soybean movie, and I put on a series of five or six meetings in Richardson, Pawnee, Gage, Jefferson, and Thayer counties to try to get farmers to produce more soybeans.

Believe me, that was pioneering. Most of the fellows we talked to had never seen a soybean, many of them had never even heard of soybeans. We should have had our heads examined for even trying, but maybe that is the way progress is made.

A soybean processor has several reasons for being interested in soybean production. The first, of course, is the one I've already mentioned—he must have soybeans to run his plant. Getting enough soybeans for a year's operation is a processor's chief concern. It's always been that way. Dannen Mills started processing soybeans of the 1938 crop and we've never been able to get enough beans for a full year's operation. Soybean production has increased by leaps and bounds, but each year's end has found the crop completely used up and most mills closed down and waiting for the new crop to come on. Each year additional processing capacity has been installed to use up any increase there may have been in soybean production that year.

This past season is an excellent example of what I've just said. With a 1950 crop estimated at 287 million bushels, processors and grain handlers said, "Well, at last we'll have a carry-over of soybeans." But such is not the case. Soybean crushing has hit an all-time peak, and exports of beans have brought again the old familiar position of many plants being forced to close in July, August, or early September for want of beans to process.

Expansion in Use

Expanded use of soybean products has made possible this great increase in soybean processing capacity. I well remember back in '39 and '40 when several of us, including Pete Marr from right here at Fremont, would meet in Des Moines or Marshalltown to discuss what in the world we would do with the soybean oil meal we were making.

That's no problem now. Soybean oil meal is the almost perfect protein, used universally in livestock and poultry feeds. With the discovery of vitamin B-12 and the antibiotic supplements, more and more soybean oil meal—good, palatable, nutritious soybean oil meal—has gone into these supplemental feeds. Demand for soybean oil continues to expand to use all of this remarkable oil that is produced.

Improvements in solvent extraction processes have caused much of the soybean industry to change to the extraction method, and I believe that, too, has been a factor in increasing the nation's processing capacity. High initial costs of an extraction plant make almost mandatory, from an economic viewpoint, the building of large capacity extraction plants. Thus, 250 to 400 tons per day is the general capacity of extraction plants, while 80 to 100 tons per day is not uncommon in Expeller or press plants. There is a definite trend toward extraction processing.

Another reason for processors' interest in soybeans is that we, like all agricultural industries, are interested in a prosperous agriculture. Our industry can prosper only when agriculture as a whole is prosperous.

Soybeans help to make farmers prosperous. As it was so aptly stated in the April issue of Soybean News, "It would be hard to go broke growing soybeans at $3.15 per bushel. The amazing increase in soybean production is proof of the fact that soybeans are a profitable crop to raise."

Soybeans now have become the leading cash crop in my home state of Missouri, passing corn and wheat in 1950. Soybeans are second only to corn as a cash crop in Illinois, passing wheat, oats, and hay, and pushing corn, too.

Dr. E. C. Etheridge of the crops department, Missouri College of Agriculture, said in a meeting in Minneapolis that Missouri could add another million acres of soybeans without getting her rotations out of balance. When Missouri does that, she'll be pushing Illinois for top honors as the leading soybean producing state.

Strides in Kansas

Kansas has made rapid strides in soybean production these past few years. Here's an article I clipped from the Kansas Farmer which says, "Record Soybean Plantings—A sharp increase is expected for soybean plantings in Kansas in 1951. Indicated acreage of 451,000 will be largest on record, according to the Kansas State Board of Agriculture. Total planted to soybeans in 1950 was 370,000 acres. The 1940-49 average for acres planted is 213,000."

Nebraska is an outstanding corn state and can become a leading soybean state, too. I hope that you Nebraskans will get tired of seeing your soybean yields lumped under the heading, "other states," and will do something about getting your total soybean production up where it should be, in relation to Iowa, Kansas, and Missouri.

For these many reasons you can see that soybeans are a good cash

crop to raise. Soybeans fit well into Cornbelt rotations. Soybeans are a good insurance crop since they are drought resistant, insect resistant, disease resistant, and stand excessive moisture well. Soybeans may be planted late to replace corn or oats, and soybeans are easy to raise using ordinary farm belt equipment, and spreading the work load through the year.

And one other way in which soybeans make for a prosperous agriculture is that they are good for the soil. They improve the tilth of the heavy soils and the water retaining ability of light soils. When the straw is plowed under after combining, soybeans add both humus and nitrogen to the soil. They produce a beneficial effect on the crops that follow them in the rotation.

These first two reasons which I have given for processors' interest in soybean production have been economic. I should mention, too, that there is a patriotic reason for processors to be interested in soybean production, for soybeans are vital to our nation's war effort.

In time of war fats and oils become of prime importance. Soybean oil is an essential food, and its by-products go into the manufacture of explosives, so that the nation's soybean crop becomes a major asset in times like these. The United States will never want for these important fats and oils while Midwestern farmers produce plenty of soybeans.

War Material

Soybean oil meal also is a vital war material. As a protein for producing more meat, milk, and eggs on American farms, it is indispensable. Large quantities go into human foods in the form of flour, cereals, etc., and industrial uses include glue stock for adhesives and plastics. Yes, soybeans play an important part in keeping our nation militarily strong.

Naturally a processor is interested in the same things about soybeans that producers are—cultural practices, harvesting, and marketing. Perhaps we are interested for different reasons than you fellows are, so let us examine them briefly.

Variety. We're interested in variety, first, for the same reason you are—higher yields. We want high yielding varieties so that there will be more beans for us to process and so that you fellows will make more money per acre and raise more beans again next year. We want high oil content varieties so that we can have a more profitable conversion with more oil per bushel of beans crushed. And we're interested in anti-lodging varieties with pods set high on the stalk so that we get cleaner beans to handle through our mills. Dirt means discounts for producers and cleaning problems for processors, so we want lodge-resistant varieties.

Cultural Practices. Most important is to keep the weeds out. Weed seeds contain little or no oil, they tend to discolor oil and reduce its quality. Excessive weed seeds reduce protein of soybean oil meal and give it a poor color. Weed stems and seeds in harvested beans usually are high in moisture and reduce the keeping quality of soybeans in storage. Most of the cause of heating or spoiling in storage is caused by wet, immature seeds in the beans, so keep the weeds out.

Marketing. We urge an orderly marketing of soybeans, and feel that this can be best accomplished through farm storage. More orderly marketing means a steadier, less fluctuating soybean price. Nobody, I'm sure, likes the wild swinging price ranges that have been characteristic of soybeans in past years. By utilizing farm storage, soybeans needed for crushing in a certain area may be

DWIGHT L. DANNEN

retained in that area until the mills are ready to use them, rather than shipped out and other beans shipped in later in the season. Soybeans keep well when clean, so farm storage is a simple matter and profitable for the farmer.

So you can see that there are several reasons why soybean processors are interested in soybean production. I'm sure, too, that you'll find soybean processors in this area are interested in seeing Nebraska produce more soybeans. As I have indicated, Nebraska has sort of lagged behind other states in this matter, yet Nebraska ranks among the leaders in corn production. The quality of Nebraska wheat is famous the world over. Let us hope that Nebraska agriculture will swing into soybean production so that this state will take its rightful place among the top producers. Then Nebraska farmers will be saying, "I raise soybeans because they make me money."

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BROKERS TO THE SOYBEAN PROCESSOR

The Present Status of Soybeans as a Crop-- THE FUTURE

By J. W. CALLAND

Managing Director, National Soybean Crop Improvement Council. From his talk before the Nebraska soybean conference.

The men who sell the soybean crop short are bad guessers, and they have been for 20 years.

RECENTLY WHILE visiting with John S. Weskett, president of the New Bern Oil and Fertilizer Co. of New Bern, N. C., I was told that during the early twenties, when we were just starting to grow soybeans in the Midwest, he customarily shipped each year from 100 to 150 cars of soybean seed into Illinois and surrounding states. Back then, North Carolina, Virginia, Mississippi, Kentucky and Alabama were the five leading states in soybean acreage.

In those days less than 5 million bushels of soybean seed were produced annually in the U.S. and they were not for processsing. Fifteen percent was used as seed on farms where produced, 25 percent fed to livestock, and the remaining 60 percent sold very largely for seed. Only one-fourth of the total soybean acreage was harvested for beans. The balance went for hay, pasture, or for plowing under for soil improvement. They were called "the poor man's alfalfa." It was not until 1941 that one-half of our soybeans were harvested for seed. Now, it is about 80 percent for seed for the entire country and more than 90 percent for the Cornbelt states. Alabama today harvests one-third of her soybean acres for beans. There are yet many areas where soybeans are still "the poor man's alfalfa."

By 1930 one-half of the soybean crop had moved into the Cornbelt. Today 90 percent of the soybeans for processing come from six states—Illinois, Indiana, Iowa, Ohio, Minnesota and Missouri. The acreage grown for all purposes ran up to over 15 million in 1943. It has averaged a little over 13 million for the past six years.

One thing is sure. Our 1951 production will fall far short of our needs. We never have had enough soybeans. Even last year's 290 million bushels won't be enough. This year is no time to sell the soybean crop short.

It has been my good fortune to be quite definitely interested in soybean production for the past 17 years. In that time I have seen some mighty poor guesses about what was going to happen to the soybean crop. I still see them. Last fall there was to be the worst glut of soybeans at harvest time that we had ever seen. There was no place to store them and the market couldn't handle them. All three of these assumptions turned out to be exactly wrong. You remember

how the acres were going to be reduced by about 50 percent in 1946 and how they were not. It can be pretty well summed up by saying that everyone who has been selling the soybeans short over the past two decades has been wrong consistently.

Well, while we are on production, let's take a look at the improvements which have come to the soybean since the early twenties. These can be divided into three rather definite periods according to one leading soybean breeder.

1920-1930. Introductions

Thousands of introductions were tested and compared. The more popular ones were Manchu, Ito San, Peking, Virginia, Wilson, Black Eyebrow, Early Brown, and Midwest.

1930-1940. Introductions, Re-Selections

The favorite varieties of this period were Illini, Dunfield, Mukden, Mandell, Richland, and 10 or 12 strains of Manchu.

1940-1950. Hybrids

Plant breeders crossed varieties having desirable qualities in order to combine the good qualities of each into new and superior strains. Their skill has given us Chief, Earlyana, Lincoln, Hawkeye, Adams, Wabash, Monroe, Blackhawk, Ogden, Roanoke, and Volstate.

Progress Made

Oil—Up 4 percent, from 17 to 18 percent up to 21 to 22 percent. A 25 percent increase.

Yield—Up 100 percent.

Lodging Resistance—Up 200 percent.

Shattering—Up from shattering to non-shattering.

Height—Not changed much.

Maturity—10 days to two weeks earlier.

Protein—Decreased slightly as oil content went up.

Disease—Disease resistant work just started.

What Can We Expect?

Standing Ability—Varieties like Hawkeye now have satisfactory standing ability and others will improve.

Height—Present height appears to be o.k.

Maturity—Will gain a little in earliness but will hold yielding ability.

Disease—Disease resistance will be incorporated.

Here is an example of this progress: From the AK of period I to the Illini of period II to the Adams of period III. The Adams is the highest-oil-content variety we have today—22 percent on a dry basis. The credit for the increase in oil content definitely goes to the plant breeders.

The contribution of the plant scientists in selecting and breeding improved and better adapted varieties, along with greatly improved technology of production, processing and marketing of soybean products, are doubtless the greatest factors in explaining the amazing increase in soybeans the past two or three decades.

I think it is interesting to recall that a soybean variety survey conducted in Ohio in 1944, just seven years ago, showed only one-half of the growers using recommended varieties and they were planting more than 50 others. Many of these other varieties were definitely inferior ones while others were too badly mixed to be called a variety. Elevators and seed dealers were selling Manchu-type soybeans to the growers. Manchu type was frequently any mixture of yellow soybeans that happened to be in the bin. Maturity dates might vary as much as two weeks among the varieties making up such a lot of seed.

Ohio growers have come a long way in soybean varieties since 1944. Today Ohio recommends three varieties—Monroe, Hawkeye, and Lincoln. Probably not more than a dozen varieties are planted in the state.

A 1951 variety survey, covering 30 states shows only 30 different varieties recommended by state crop specialists, and these range from the early maturing varieties for Minnesota to the late maturity group for Louisiana.

Processing and Marketing

Again, we must go back to North Carolina for the first processing of American grown soybeans. The Elizabeth City Oil and Fertilizer Co. made a run of 10,000 bushels in Dec. 1915, and W. T. Culpepper, manager of the firm, reported that the operation was successful. The first processing here in the Midwest was by the Chicago Heights Oil Manufacturing Co., of Chicago Heights, Ill., in 1919. But, according to I. C. Bradley, who was in charge of the operation, they brought the soybeans from North Carolina. The following year they put in two expellers and started to process a few Illinois soybeans. As many of you know, Mr. Bradley has continued to process soybeans for the past 32 years. He is at present manager of the Allied Mills soybean plant at Taylorville, Ill.

As long as 50 million pigs a year suffer from nutritional deficiencies there is no need to worry about finding a market for soybean oil meal.

Cornbelt soybean growers have ample markets for their soybeans. Processing plants already in operation and now being built will have crushing capacity of at least 290 million bushels.

Now, just a word about this greatly expanded processing capacity. It isn't just bad guessing by the processors. Much of it is simply progress. The industry is in the process of changing over from the screw-press method to the solvent extraction method. Much of the present screw-press capacity eventually may be eliminated. Moreover, considerable potential soybean processing capacity is being used part time, or in some cases, even full time in crushing other oil seeds. In reality, the figure of 290 million bushels is the approximate capacity that could readily be used for soybeans if it were advantageous to do so.

Nebraska doubled her acreage in 1950, came through with a 24-bushel average yield, and produced more than a million bushels of soybeans. The processing plants within her borders can readily crush all of these, and plenty of markets outside the state are bidding for Nebraska soybeans.

In 1924, the first year the USDA considered the soybean crop important enough to gather statistics on it, the estimated value of the crop was about 11 million dollars. Consider the 1950 crop worth approximately 1 billion dollars.

Soybean Oil Meal

The soybean grower is naturally interested in knowing if increased production of soybeans will find a market through soybean oil and soybean oil meal. In my opinion, many important and effective forces are constantly working to increase the demand for soybean oil meal. In the past 15 to 20 years this demand

has grown from nothing to 5½ million tons annually. About 95 percent of our meal is used to feed our livestock and poultry. Soybean oil meal has made possible the great advancement in the feeding of our farm animals in the past two decades. Nevertheless, if all our livestock and poultry were to be fed properly balanced rations, according to our nutritionists, it would take a far greater production of soybean oil meal. Michigan State has recently estimated that 50 million pigs a year still suffer from nutritional deficiencies.

The agricultural experiment station workers have carried on a broad program of research work on soybean oil meal because of the economic need for an efficient, low-priced protein concentrate. They have shown that soybean oil meal, when properly processed, is a high-grade source of protein. Experiment station workers, extension workers, county agents, and agricultural teachers in rural schools recommend soybean oil meal for poultry and livestock feeding. Feed manufacturers use soybean oil meal as the principal source of supplementary protein in poultry and hog feeds. It successfully competes with cottonseed meal, linseed meal, gluten meal, and others, in dairy and beef cattle rations.

Today, a vast step forward in swine and poultry feeding is coming about through the addition of the B-12 supplement and the antibiotic supplement to formula feeds containing soybean oil meal. This will vastly increase the use of soybean oil meal in feeds.

Certainly a potent factor in increasing the use of soybean oil meal is the thousands of feed salesmen who daily sell the idea of properly balanced rations to our growers of livestock and poultry. The promotion of sound feeding practices will continue to grow and is bound to increase the use of soybean oil meal as a feedstuff in the future.

The industrial possibilities of soybean protein have been scarcely touched. Although extensively used in adhesives, textile processing, paper coating, spray materials, and water paints, industrial uses are a field of great promise for future development.

Soybean Oil

About 85 percent of our 1,200,000 tons of soybean oil goes into foods, shortening, margarine, mayonnaise, salad dressings, and cooking fats. The remainder goes into industrial uses. Much progress has been made in the last few years in improving the oil, both for food and for industrial purposes. Today, nearly one-half of all our vegetable oil is now soybean oil. It exceeds the production of all our animal food fats with the exception of lard. It is likely that soybean oil will continue to be used largely for human food. Its future markets will depend largely on the price and supply of all food fats. However, its use for industrial purposes is growing steadily. The use of soybean oil in paints, lacquers, varnishes, oilcloth, linoleum, and many other products is becoming increasingly important.

In the field of markets for soybean products there also have been plenty of bad guesses. It seems to me that at some time during at least half of the past 17 years I have heard wailing to the effect that there will never be a market for this much oil, or this much meal, and then before the year was out we would face a shortage of that particular product.

The Future

The soybean industry is relatively new in America. Soybean oil, soybean oil meal, and the products made from them have been on our markets for only a few short years. Yet, in this brief time this amazing crop has increased until today it is our major producer of both oil and protein. Production of soybeans doubled at the beginning of World War II, up from 100 million bushels to 200 million. There were many who expected production to drop back again to about 100 million bushels at the close of the war. Instead, it has continued on up to approximately 300 million bushels.

What is ahead for soybeans? Up to now the industrial or chemurgic uses of the soybean is only at the beginning. We have only stepped our foot inside the door. Each year brings new products and new markets. With our population rapidly increasing and demanding more fats and proteins, with livestock feeding and industrial uses of soybean products constantly moving upward, the big need for the soybean crop lies ahead.

A year ago at the Springfield meeting of the American Soybean Association Clyde Hendrix predicted 500-million-bushel crops before many years. At the Cincinnati meeting of the National Farm Chemurgic Council George Strayer said the "heyday" of the soybean lies ahead, and it will not be many years until we will be producing and utilizing, through increased chemurgic developments, crops of 400 million and 500 million bushels of soybeans per year.

— s b d —

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Feeding Value of Soy Proteins

(Continued from page 15)

trial with fall pigs, on practical rations; and part of the pigs were in dry lot. When vitamin B-12 was included in the ration, the pigs did as well on soybean oil meal as they did on tankage; when aureomycin was added to the ration, they did better on soybean oil meal than they did on tankage with aureomycin. Apparently the level of penicillin was too low to have any effect.

Five lots were on pasture during the trial. The pasture was not of exceptional quality, and much of the time the weather was cold enough to have an adverse effect. The pigs did as well or better on soybean oil meal than they did on tankage. It was surprising to us, but when aureomycin or penicillin was added to the rations on pasture, there was no increase whatever in the rate of gain. Some of our data are shown in the following table:

Basal Rations Used in Tests with Weanling Pigs

Ration	1	7
Yellow corn	68	77.5
Soybean oil meal	29.5	—
Tankage	—	20.0
Mineral mixture	2.0	2.0
Cod liver oil	0.5	0.5

Average daily gains of pigs, 91 days in feeding period.

Ration No.		Avg. daily gain lbs.
1.		1.23
2.	(1) vitamins	1.24
3.	(2) + trace minerals	1.34
4.	(3) + B-12 concentrate	1.48
5.	(4) + aureomycin*	1.76
6.	(4) + penicillin**	1.56
7.		1.25
8.	(7) + vitamins	1.43
9.	(8) + trace minerals	1.45
10.	(9) + B-12 concentrate	1.41
11.	(10) + aureomycin*	1.57
12.	(10) + penicillin**	1.40
13.	(7) on pasture	1.43
14.	(1) on pasture	1.51
15.	(14) with chloromycetin	1.35
16.	(14) with aureomycin*	1.47
17.	(14) with penicillin**	1.46

* Aureomycin, 4.25 mg. per lb. of feed.
** Penicillin, 1. mg. per lb. of feed.

General Mills Adds to Resin Line

General Mills Research Laboratories, Minneapolis, have added a series of new compounds to the company's line of heat-sealing Polyamide Resins. The new products are code named Polyamide Resin No. 90, No. 90S, No. 93S, No. 94S, No. 95S and No. 100S. General Mills claims that all of them may be used alone or as modifiers for other resinous products. All are products of soybean oil.

Polyamide Resin No. 90 is a hard, tough and brittle resin, made by the copolymerization of di- and tri-linoleic acid and other acids with ethylene diamine. Like all of General Mills' Polyamides, it is resistant to greases, oils, water and water vapor, alkalies, mild acids and many organic solvents. But it has still better solvent resistance than previous polyamide resins and has a higher melting point (185° C. as compared with 105° C.) When properly plasticized, it makes an effective water, water vapor and grease proof coating for paper and many other materials. It also serves as a coating for electrical units and shows promise as a molding compound and binder.

Adding a small amount of antioxidant to Polyamide Resin No. 90 or to other General Mills Polyamides produces the stabilized products designated as No. 90S, No. 93S, No. 94S and No. 95S. At high temperatures, these stabilized resins have a gel time approximately three times longer than have the standard polyamides themselves. Because of their heat resistance, the stabilized Polyamide Resins are recommended for use in "hot melt" applications.

Polyamide Resin No. 100S, the other addition to General Mills' Polyamide Resin family, is a soft, tacky, plasticizing type of resin. It is made by the condensation of dimerized and trimerized unsaturated vegetable oil fatty acids with *diethylene triamine*. Dr. Harold Wittcoff, in immediate charge of the product's development, says it has unusual adhesive properties, particularly for non-porous surfaces. It adheres well to metals, glass, cellophanes, Saran film and cellulose acetate as well as to paper, rubber and leather. Because it is compatible with a wider range of materials than are other polyamides, it is a potential plasticizer for resinous products.

Fred B. Speyer, product development specialist for General Mills Research Laboratories, has announced that all of the new Polyamide Resins are available in commercial quantities.

—sbd—

PILLSBURY MANAGERS

The appointment of six new regional sales managers has been announced by G. R. Peterson, feed and soy sales manager of Pillsbury Mills, Inc.

John F. Toeller, Jr., who has spent nine and one-half years in sales with the feed and soy division will move from Minneapolis to Wichita, Kans., and will manage the territory including Kansas, Nebraska, Colorado, Texas and Oklahoma.

The Illinois, Indiana and Michigan territories will be handled by Donald W. Thayer who has moved with his wife and three children to Danville, Ill. Thayer has been with Pillsbury for 16 years. He has most recently served as territory manager, sales supervisor and headquarters representative in the feed division.

Russell Somerville has spent nine years with Pillsbury as territory manager, sales supervisor and headquarters representative in the feed divi-

Are All Digest Readers

Left to right: Frank Woodson and E. H. Tenent, Woodson-Tenent Laboratories, Memphis, Tenn., and E. C. McGee, of Swift & Co.'s district office at Memphis, discuss the soybean crop while referring to the Soybean Digest of which they are all avid readers.

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sion. He was formerly located at Jackson, Mich., and will now supervise the Ohio, Michigan and Pennsylvania territories.

Harvey D. Bush came to Pillsbury two years ago with considerable experience in the feed business. After serving as a resale man and territory manager, he now becomes regional manager of northern Illinois, Wisconsin, northwest Iowa and the Michigan Peninsula. He will operate out of Madison, Wis.

After two and a half years as a resale man and territory manager in the feed and soy division, Alan J. Johnson is managing the region including Minnesota, North and South Dakota and the northern part of Iowa.

Formerly a territory manager working out of Columbus, Miss., Charles N. Hayslett will manage the region including northern Arkansas, the southern third of Iowa and one territory in Illinois. Hayslett joined Pillsbury last year.

—sbd—

OPENS NEW LAB

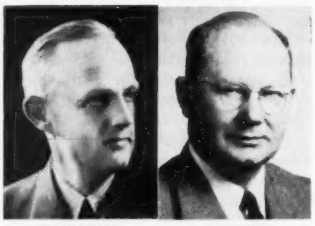
The Woodson-Tenent Laboratories, Memphis, Tenn., has announced the opening of a new commercial laboratory in Clarksdale, Miss. This makes a total of seven laboratories owned by the firm. E. H. Tenent and F. P. Woodson are owners.

Other laboratories are located at Little Rock, Ark., Blytheville, Ark., Cairo, Ill., Decatur, Ill., Des Moines, Iowa.

The Clarksdale laboratory will specialize in the analyses of cottonseed and its products, soybeans and their products, feeds and other agricultural products.

Harvey Lee Hutton, who has been with the firm's laboratory at Cairo, Ill., for the past four years will be manager.

HEADS CHOW SALES OF RALSTON PURINA



STEVENSON PUTNEY

Above are Elmore T. Putney, the late vice president and general sales manager of "Chow" sales for Ralston Purina Co., St. Louis, and Louis C. Stevenson, who succeeded him. Putney passed away suddenly Oct. 1.

Stevenson, a native of California, Mo., became sales mangaer of Purina's South Central division in 1928 and was promoted to the position of sales manager of the entire Southern region in 1943.

Putney came directly to Purina from Oklahoma A & M College in 1922. After two outstanding successes as divisional sales manager, he was moved to St. Louis in 1940 to become vice president of Purina and general sales manager of Chows.

E. M. Putney was a "Builder of Men." Although his sudden death is shocking, it is significant that his death came at the very pinnacle of his success. Less than a week before, he helped celebrate Purina's greatest tonnage achievement.

British Visitor at Southern Laboratory

C. G. Heywood (center) of London, England, conferred recently with E. A. Gastrock (left) and P. R. Dawson of the Southern Regional Research Laboratory, New Orleans, La., on the chemistry and technology of oilseeds suited to climatic conditions of the South. His visit to the Southern Laboratory was part of a tour to government and industrial organizations to obtain information which would help solve problems encountered in expanding the oilseed production of the British Empire. Heywood formerly was managing director of Pinchin, Johnson and Associates, Ltd., a British paint company. Heywood also spent some time with Geo. M. Strayer, secretary-treasurer of the American Soybean Association at Hudson, Iowa, while in the U. S.

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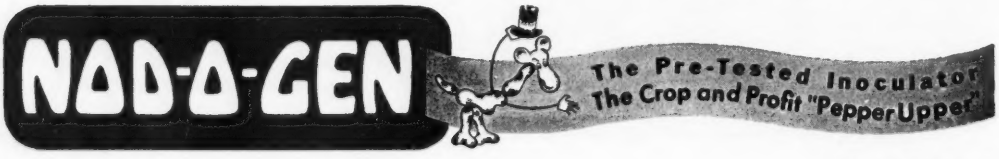
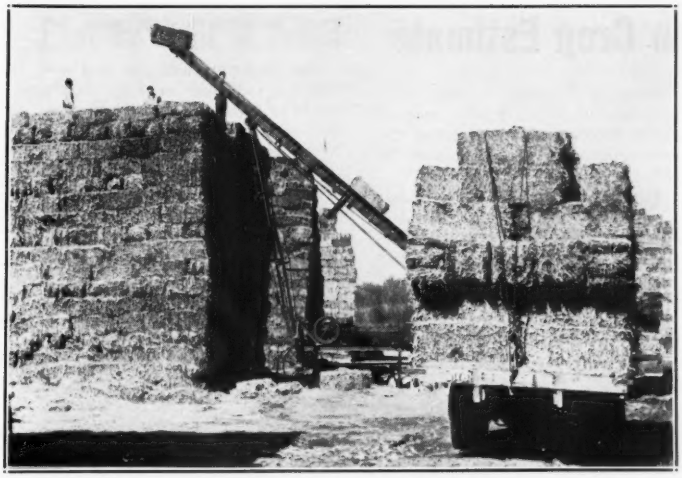




Soybean straw bales. Bale ricks of soybean straw are piled high at the Alton plant.

PAPER from SOY STRAW

(Reprinted from Chemurgic Digest)

THROUGH THE MAILS in the fall of 1950 there went a "newsletter" which told farmers a new story. It was a circular which they read because it offered them money for one of the waste products on their farms—soybean straw.

Announcement of the new and steady market for soybean straw was made by the Alton Box Board Co. of Alton, Ill., in a two-page folder prepared by the Doane Agricultural Service, Inc., of St. Louis, Mo. It told a significant story, and offered farmers $15 a ton for soybean straw delivered to Alton.

"If the rail freight is more than $4 per ton, they will still pay you $9 per ton at designated shipping points in your area," the folder stated. Later the price was raised to $12 a ton, f.o.b. shipping point in southeast Missouri.

Sends Sample

Enclosed with the newsletter was a brown paper sample made from soybean straw. "This paper is corrugated and glued between two sheets of boxboard to make corrugated boxes," the announcement said. "They are needed for shipping food, clothing and war material in our growing defense program," it added. Soybean straw makes a stiffer, hence better paper for the purpose, than wheat straw.

Alton Box Board Co. spent five years in costly research to perfect a method of using waste soybean stalks to make paper. Thousands of tons of soybean straw are burned every year because it is difficult to disk or plow with a heavy mass of bean stalks on the field. Chemurgy found a way to turn those stalks into cash, and at the same time, help reduce the paper shortage, the company said.

Growing Paper

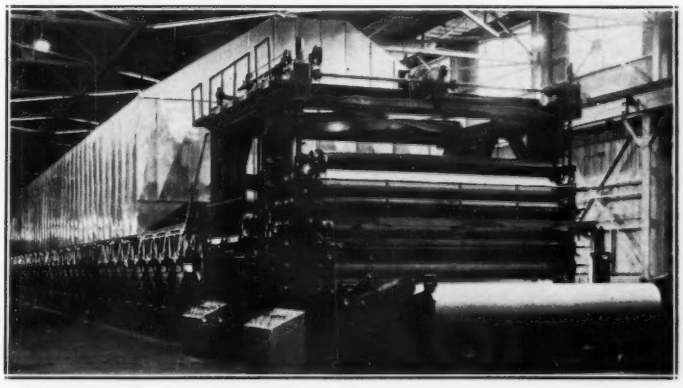
It is important to grow paper making materials on farms because the growing demand for paper is outrunning the rate of timber growth available for pulp. Farmers can now plan in terms of growing wheat and soybeans to produce both grain and beans—and paper making materials. Farms have a larger and more profitable job to do.

Alton offered farmers a premium of $2 more per ton if they would stack the straw on their own farms and hold it until it was called for delivery, provided the farmer had 750 bales or more. The company offered to advance money on the straw and insure it against fire and storm damage. It agreed to accept delivery before Apr. 1.

"Keeping the soybean straw on your farm is no extra trouble," it explained. The straw can be stored outside since rain will not hurt it. The company explained that it would cost approximately $2 a ton to handle the straw if farmers shipped it to Alton before the firm was ready to use it, and that the manufacturer would prefer to give the farmer $2 a ton than to have to pay out the same sum for useless work.

Since many farmers had never estimated the amount of straw produced, the newsletter explained that rich heavy bottom soils yield from three-fourths to one and one-half tons per acre. Lighter upland soils average around one-half ton per acre.

Alton Box Board Co. turns soybean straw into a useful product.



USDA Raises Soybean Crop Estimate

Harvesting of the nation's second largest soybean crop nears completion. Production is currently estimated at 278 million bushels, according to the Nov. 1 survey of the USDA crop reporting board. This is only about 3 percent less than the record 287 million bushels produced last year and is 55 percent above the 10-year average production of 179 million bushels.

Yields per acre harvested are turning out better than expected in most of the Northern states while in some of the Southern producing states prolonged drought cut yields more than earlier anticipated.

The U. S. yield of 21.2 is relatively high, being exceeded only by 1948, 1950, and the record yield of 22.7 bushels in 1949.

Yields are higher than reported a month ago in all the major producing states of the North Central area. Weather during October was generally favorable for maturing late planted beans and for harvesting the bulk of the crop. Yields in Ohio are turning out better than anticipated a month ago but are relatively low due to drought conditions in that state. In Iowa, soybeans were generally late. Some Iowa beans were caught by the Sept. 28 frost but damage was much less than reported earlier.

In the South Atlantic area, indicated production of soybeans is a little less than expected due to a reduction in Virginia. In that state prolonged drought sharply reduced earlier prospects. Other states of the area indicated little change from the Oct. 1 forecast.

The South Central area also shows a decline in production from last month due to reduced yields in Tennessee and Mississippi. Here again dry weather curtailed earlier good prospects. Arkansas, the heaviest producer in the South Central area, shows no change from the high yield of 21 bushels per acre reported a month ago.

Canadian Crop

Canadian soybean acreage and production have established new records this year, according to Foreign Crops and Markets. An area of 176,100 acres, 24 percent larger than in 1950, has produced an estimated 3,962,000 bushels of beans compared with 3,323,000 in 1950. Soybean acreage continues to be confined to the Province of Ontario.

Early maturing varieties are being used and plantings are being extended to central and eastern Ontario in addition to the primary area in the southwestern part of the Province. Combine harvesting is general, and the crop has been introduced widely into the rotational pattern of Ontario farming.

With better varieties, favorable prices, and an expanding market, interest in soybean production has grown.

The marketing situation and outlook for Canadian soybeans continues to be excellent. With the margarine industry operating at a higher level than last year, when 94 million pounds were produced, the Canadian market continues to absorb all of the domestic soybean production. In 1950, Canadian soybean production was still less than half of total requirements.

It is estimated that 8 million bushels of soybeans were crushed in Canada during the 1950-51 crop year, compared with 5.5 million in 1949-50. This figure probably will be exceeded in 1951-52.

Soybean imports for domestic crushing during the 1950-51 crop year, almost all from the United States, totaled about 4.7 million bushels, and are expected to be about the same in 1951-52.

Soybean prices in Canada follow the United States market very closely.

Crop in Brazil

The soybean crop harvested in Brazil this past May and June has been revised downward to 1,840,000 bushels but still represents an increase of 43 percent from the 1950 output of 1,290,000 bushels, reports Foreign Crops and Markets of the U. S. Department of Agriculture.

Good demand and favorable prices are expected to effect an increase in the 1951-52 soybean acreage in Brazil.

In Italy

Per acre yield of soybeans in Italy in 1951 was 42 percent greater than in 1950, reports Foreign Crops and Markets of the U. S. Department of Agriculture.

The 1951 soybean yield was 945 short tons from 1,263 acres compared with 875 short tons from 1,670 acres in 1950.

Net imports of oilseeds during the first half of 1951 were 40 percent over the same period last year. An outstanding development in 1951 imports was the shift from the United States to China as the leading source of supply.

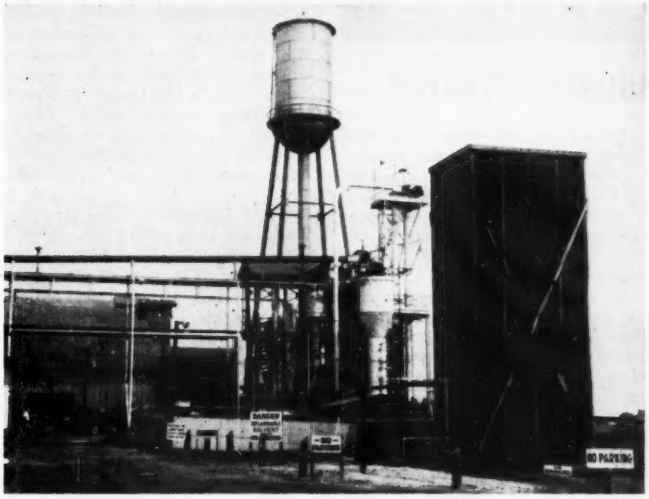
Chinese sources accounted for about 44 percent of the January-June imports. Bulk of the oilseeds imports from China and Hong Kong consisted of soybeans, but also included peanuts, rapeseed, sesame and castor beans.

SOYBEANS—FOR BEANS

State	Yield per acre			Production		
	Average 1940-49	1950	Preliminary 1951	Average 1940-49	1950	Preliminary 1951
	Bushels			Thousand bushels		
N. Y.	15.3	18.0	18.0	154	108	162
N. J.	15.7	19.0	16.0	174	266	224
Pa.	15.4	17.0	17.0	359	289	255
Ohio	19.6	22.0	19.0	18,552	23,232	20,881
Ind.	18.9	22.0	23.5	25,013	35,002	37,600
Ill.	21.4	24.0	26.0	68,424	94,752	91,832
Mich.	17.0	19.5	21.0	1,593	2,282	2,415
Wis.	14.3	14.5	14.5	497	348	290
Minn.	15.5	15.5	18.0	7,221	16,384	19,314
Iowa	19.9	22.0	21.0	30,709	42,262	33,117
Mo.	15.8	23.0	19.5	9,730	27,393	25,760
N. Dak.	*11.1	10.5	12.5	* 86	430	350
S. Dak.	14.0	12.5	15.0	260	825	915
Nebr.	16.8	24.0	21.0	436	1,104	966
Kans.	11.7	18.0	12.5	2,050	6,462	6,325
Del.	12.7	14.0	14.0	465	644	602
Md.	13.6	16.0	16.0	439	656	880
Va.	15.2	19.0	17.5	1,277	2,527	2,695
W. Va.	13.0	13.5	12.5	14	14	12
N. C.	12.5	17.0	16.5	2,921	5,117	4,917
S. C.	8.4	12.0	11.5	132	528	621
Ga.	7.0	8.5	7.5	83	204	255
Fla.			18.0			108
Ky.	15.8	17.5	19.0	1,293	1,890	2,546
Tenn.	14.6	21.0	18.5	877	3,150	3,256
Ala.	12.6	18.0	18.0	468	1,620	2,052
Miss.	13.5	24.0	16.0	1,362	6,768	5,552
Ark.	15.3	21.0	21.0	3,506	11,676	12,180
La.	13.0	18.0	17.5	378	720	788
Okla.	8.0	17.0	16.0	60	357	720
U. S.	19.0	21.6	21.2	178,567	287,010	277,590

* Short-time average.

Exsolex Plant at Dothan, Ala.



—Photo courtesy Dothan Eagle

This $500,000 unit was recently placed in operation by the Dothan Oil Mill Co. at Dothan, Ala., and is said to be the only unit in the Southeast that will operate on cottonseed, soybeans and peanuts, all three. This is a V. D. Anderson Co. plant and employs the Exsolex process. As a safety measure the plant has a water fog sprinkler system with a capacity of 100,000 gallons of water in 10 seconds.

1951 U. S. Exports Set New Record

U. S. exports of soybeans and soy oil combined set a new record for the crop year ending Sept. 30, according to Foreign Crops and Markets issued by U. S. Department of Agriculture.

In terms of soybean equivalent, exports totaled 78,948,000 bushels, with 27,828,000 bushels shipped as beans and over 50 million bushels exported in the form of oil. Exports of soybean oil meal and cake, included in the above soybean equivalent, would account for some 7.5 million bushels of beans. This indicates that most of the meal from the exported oil remained in this country.

For the crop year ending Sept. 30, 1950, combined exports were equivalent to 43,358,000 bushels, with 21,766,000 bushels in the form of whole beans, according to Foreign Crops and Markets.

Exports for the 1950-51 crop year were distributed widely throughout the world. Either beans or oil or both were shipped to a total of 66 countries. (Of these 34 received the equivalent of less than 50,000 bushels each, and are included among "other countries" in the accompanying table.)

Japan, with 12,383,000 bushels, accounted for about 45 percent of all the soybeans, and Japan, together with Canada, France and Germany accounted for more than 80 percent.

In the case of crude soybean oil, Italy stands out with 117,301,000 pounds, and Spain and Italy combined took 167,797,000 pounds or almost 60 percent of the total. The concentration in the case of refined soybean oil is even more pronounced with Spain alone accounting for 60 percent.

Expressed in terms of soybean equivalent, Spain was the most important outlet for U. S. soybeans by a wide margin this past year, followed by Italy and Japan. Germany ranked fourth, followed by Canada and France. These six countries make up the bulk of the export market with three-fourths of all the sales.

UNITED STATES: Exports of soybeans and soybean oil and total exports in soybean equivalent, crop year October-September 1950-51*

Country of destination	Soybeans (except canned)	Soybean oil		Total soybean equivalent
		crude	refined	
	1,000 bushels	1,000 pounds		1,000 bushels
Canada	4,670	3,095	14,230	6,529
Panama	—	—	564	61
Cuba	—	7,925	6,540	1,520
Haiti	—	881	1,067	206
Neth. Antilles	—	—	1,244	135
Venezuela	—	—	1,099	119
Peru	—	—	526	57
Chile	—	1,094	951	215
Iceland	—	—	1,076	117
Norway	429	—	—	429
Denmark	856	—	—	856
Unit. Kingdom	—	15,432	—	1,578
Netherlands	964	8,282	11	1,812
Belgium and Luxembourg	579	9,449	11	1,546
France	2,809	4,442	1,501	3,420
Germany	2,809	36,316	116	6,535
Austria	—	8,654	8,475	1,803
Switzerland	—	2,351	352	279
Spain	—	50,496	122,539	18,445
Italy	353	117,301	1,763	12,538
Free Territory of Trieste	—	830	882	181
Yugoslavia	—	—	15,344	1,665
Greece	—	—	12,770	1,386
Israel and Palestine	641	—	4,944	1,176
Philippines	151	—	401	195
Hong Kong	118	—	3[1]	118
Formosa	896	4,582	—	1,365
Japan	12,383	—	217	12,407
French Morocco	162	6,157	1,099	910
Tangier	—	—	1,238	134
Algeria	—	7,910	882	904
Tunisia	—	—	661	72
Other countries	8	4	2,086	229
Total	27,828	285,201	202,592	78,948

*Preliminary. Compiled from official sources.

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PUBLICATIONS

Soy Is Leading Industry Protein

Oilseed meals predominate among the sources of protein for industry. And soy-protein isolate and soybean oil meal are by far the leading oilseed proteins used by industry.

Also used are soy flour, zein and corn gluten, and a small amount of cottonseed and peanut meals.

Most of the non-food industrial usages for oilseed proteins have been achieved at the expense of casein, according to a joint study of the Bureau of Agricultural Economics and the Bureau of Agricultural and Industrial Chemistry.

Big outlets for soy-protein isolate, soy flour and soybean oil meal are in plywoods and paper coatings. Other uses into which soy products are entering in smaller quantities are: fiberboard, fiber containers, water paints, felt base coverings, asphalt emulsions, fire foam liquids and leather finishing.

One of the most promising fields for increased use of oilseed proteins is textiles, although no soy products are now being used in this field.

Soy-protein isolate is widely substituted for casein in pigment coating paper board for the purpose of binding pigments to the paper stock and to each other. This is much the largest use of proteins by the paper industry—about 14.5 million pounds of soy-protein isolate and 20 million pounds of casein are so used annually.

At present, the outlook for use of oilseed proteins in the pigment coating industry is threatened by latex additions, other synthetics and starch coatings, which are making inroads into this use.

In coating wallpaper, soy-protein isolate is preferred to casein because of rheological characteristics, brighter finishes and lower price. About 5 million pounds of soy-protein isolate and 2.5 million pounds of soy flour are used for this purpose annually.

In the plywood market soybean oil meal glues have been losing to phenolic resins in softwood plywood, and to urea resins in the production of hardwood plywood. It is suggested that soybean oil meal will need more research if it is to hold its ground here, but that such research will be fruitful.

Greatest possibilities in the adhesives field for additional use of oilseed proteins appear to lie in solid fiberboard and in spotting thin cork-board inserts on metal bottle caps. Soy-protein isolate has been successful in the manufacture of solid fiberboard shipping boxes.

Multiwall paper bags offer a large market for adhesives. Oilseed proteins might break into this field because of their water resistance if they were developed so they could be applied cheaply.

Printed felt base, the least expensive of floor coverings, which uses about a million pounds of soy-protein isolate, and asphalt emulsions on roads, are stable markets for protein. Soy and cottonseed proteins compete with casein, blood and lignin for the latter market.

It does not seem likely that soy or other oilseed proteins can compete successfully in the rubber latex or plastic markets in the near future.

Supplies of oilseed proteins are more than ample for any prospective need.

Soybeans should have little trouble in holding their own in the industrial field in competition with other oilseeds, according to the report. Soy protein is the largest and most dependable source of supply. Development of peanut protein depends on lower cost of production. Use of wheat gluten is limited by the market for wheat starch, of which it is a minor by-product. Supplies of casein have been irregular, and most imports have been poor and variable in quality. These facts have helped the acceptance of soy-protein isolate in competition with casein.

MARKETING POTENTIAL FOR OILSEED PROTEIN MATERIALS IN INDUSTRIAL USES. A report of Arthur D. Little, Inc. Technical Bulletin No. 1043, 1951. 124 pages. U. S. Department of Agriculture, Washington 25, D. C.

CNS Disease Resistant

The CNS variety of soybeans has been found to be highly resistant to bacterial pustule, a disease that often affects the foliage of soybeans in the southeastern U. S.

A study by Dr. E. E. Hartwig, agronomist, U. S. Regional Soybean Laboratory, Stoneville, Miss., and S. G. Lehman, professor of plant pathology, North Carolina State College, indicates that resistance to this disease is recessive.

INHERITANCE OF RESISTANCE TO BACTERIAL PUSTULE DISEASE IN SOYBEANS. By E. E. Hartwig and S. G. Lehman. Agronomy Journal, May 1951.

Soy Flour for Bees

Soy flour is used by the beekeeping industry as either a supplement to

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or substitute for pollen in feeding bees. When used as a complete substitute it is mixed with dried brewers yeast or skim-milk powder.

FEEDING POLLEN SUPPLEMENT AND POLLEN SUBSTITUTE TO HONEYBEES. By Marshall D. Levin, William P. Nye and George K. Knowlton. Extension Bulletin 237, Utah State Agricultural College, Logan, Utah.

BOOKS

Handbook on Patents

Just out is a concise handbook on patents, their development and current practice.

The author, Dr. Worth Wade, is a registered patent attorney and chemist. He served as manager of the patent department of Sylvania Industrial Corp. from 1931 to 1947, and since then in the same capacity for the American Viscose Corp.

Without footnotes, case histories and legal technology, the book simply and accurately discusses what a patent is, lists the steps that must be taken to protect an invention, discusses interference and prosecution of patents, describes a typical patent department of a company, discusses its relation to the inventor-employee, etc.

A most important and so far neglected subject is found in the last chapter: How to read a patent.

The handbook has been written for the inventor and employee of a chemical process plant. Its language is for the layman, not the patent attorney. In its pages are incorporated over 20 years of patent know-how by Dr. Wade.

PATENTS FOR TECHNICAL PERSONNEL. By Dr. Worth Wade. 44 pages, paper bound. $3.00. Order through Soybean Digest, Hudson, Iowa.

LETTERS

For Standards Change

TO THE EDITOR:

Some beans are awfully trashy (this year.)

Each year we become more firmly convinced that *grade standards* are a *must*. Let's have them by 1952 crop!—*W. M. Scott, Tallulah, La.*

Mississippi Report

We are a new concern organized in May of this year. The farmers in the community had to have an outlet for their soybean crop so decided to sell stock and build this elevator.

The elevator is a concrete structure built by J. E. Reeser & Son, Maroa, Ill., with a capacity of 170,000 bushels.

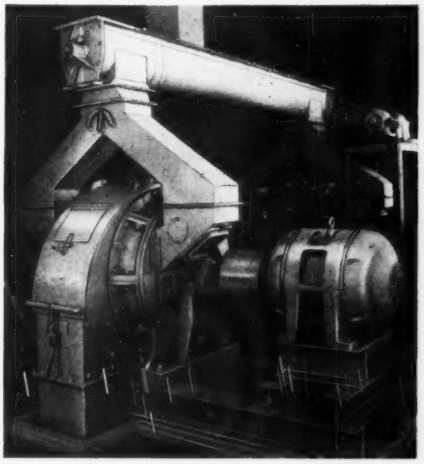
The soybean crop this year is very small due to climatic conditions at seeding time.

Estimates seem to be that the crop is 75 percent smaller than last year. Acreage was increased over 1950 but growing conditions were not suitable. Prospects for 1952 show that there will be more acreage planted than there was this year.

The potential is much greater here for soybeans than it is in the Midwest. Last year some yields ran as high as 54 bushels. A 40-bushel yield is very common. The Delta is going to soybeans very rapidly.—*Earl R. Pack, manager, Hollandale Grain Elevator Association, Hollandale, Miss.*

with soybean processors everywhere

THE TREND IS TO PRATER



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PRATER PULVERIZERS

GRITS and FLAKES... FROM THE WORLD OF SOY

◆ Fred J. Roberts has been elected vice president in charge of nutrition of Kent Feeds, Muscatine, Iowa. President G. A. Kent has announced. He has been with Kent Feeds for 18 years, and while with the firm has been responsible for the development of new feeds and feeding programs.

◆ A. R. Baldwin, editor of the Journal of the American Oil Chemists' Society, was awarded a Normann citation by the Deutsche Gesellschaft fur Fettwissenschaft e.V. at its meeting in Hamburg, Germany, in October. He was the first non-German to be so honored.

◆ Henry B. Lovig, formerly manager of the Farmers Cooperative Elevator at Martelle, Iowa, has purchased the former Renner Feed Mill, Galesville, Wis. He will handle Wayne feeds and do custom grinding and mixing of feeds. The soybean processing plant at Martelle has suspended operations at present.

◆ *New solvent plant of the Tri-County Cooperative Soybean Association at Dawson, Minn., went into production in December. Completion of the project was celebrated by an open house Dec. 8.*

◆ Fred Wolter has been appointed manager of the new north central sales district of McMillen Feed Mills, Fort Wayne 2, Ind. He has been with McMillen since 1942. Merle Alstiel and O. G. Bryant have been named territory managers in this district.

◆ E. S. Burroughs, formerly territory manager in Arkansas for McMillen Feed Mills, has been made manager of the firm's southwestern district, which covers Arkansas, central and western Tennessee, Mississippi, Alabama, southern Missouri, Louisiana and western Kentucky. He succeeds Frank Dalrymple, who was recently made sales manager for the southern division.

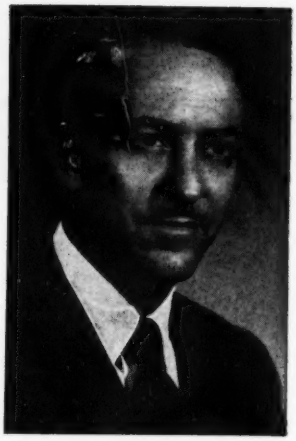
◆ J. O. McClintock, executive vice president of the Chicago Board of Trade since Jan. 1, 1948, has announced he will terminate his services with expiration of his contract Dec. 31, 1952. He hopes to devote more time to his extensive agricultural interests.

◆ *Exact Weight Scale Co., 944 W. 5th Ave., Columbus 8, Ohio, has issued a bulletin describing its line of sacking scales. Ask for Bulletin No. 3268.*

◆ Election of Samuel O. Sorenson to the board of directors of Archer-Daniels-Midland Co., Minneapolis, has been announced. Since 1947 he has been vice president in charge of research.

◆ A two-color bulletin with complete descriptions of "Wheel-Ezy" hand trucks has just been published by the Rapids-Standard Co., Inc., 342 Rapistan Bldg., Grand Rapids 2, Mich. Ask for Form WEL-51.

HEADS McMILLEN SALES



KRIDER

Public announcement is made of the appointment of Dr. J. L. Krider to the position of vice president and director of feed sales of McMillen Feed Mills. Dr. Krider joined McMillen Feed Mills in July, 1950, as director of feed research and education.

In his new capacity, Dr. Krider will be responsible for distribution of Master Mix Feeds and McMillen farm supplies throughout the company's entire trading area, which comprises the Midwest, Middle Atlantic and Southern states.

Dr. Krider was formerly head of the swine division, department of animal science at the University of Illinois College of Agriculture.

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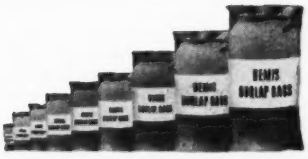
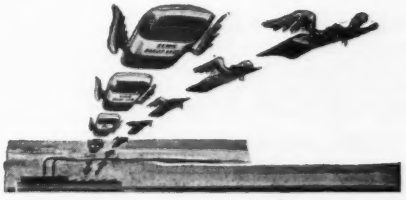


You can use Bemis Burlap Bags over and over again . . . and cut your packaging costs to the bone.



A big manufacturer using 50,000 bags a day, kept a record of repeat trips of burlap bags . . . and learned that the bag cost only 6 cents per trip.

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BEMIS

Bemis—an American enterprise in business since 1858 . . . employing 10,000 men and women in 45 plants, mills and sales offices . . . in 28 states, coast to coast.

◆ Dick Robinson, owner of FoodkeapeR, Memphis., Tenn., firm manufacturing bins, warehouses, conveyors and portable crop driers, has announced that the firm is being incorporated as FoodkeapeR, Inc.

◆ Russell Brannen has been appointed to the newly created post of cattle specialist for Kent Feeds, Muscatine and Sioux City, Iowa. He has been with the retail sales division of Kent Feeds for four years, and has had wide experience in the feeding and fitting of all types of show cattle.

◆ A 28-page catalog that makes it easy for any firm to select the right type of conveyors, trucks and industrial casters has been published by the Rapids-Standard Co., Inc., Dept. GC-52, 342 Rapistan Bldg., Grand Rapids 2, Mich. Ask for the Rapistan Material Flow Conveyor catalog.

◆ *The "Qwikie," an improved raised cake transfer decoration manufactured by Seagren Products, Inc., Dept. BH, 1266 36th St., Brooklyn 18, N. Y., contains soy as an ingredient.*

◆ Ramal R. Cozort, 25, superintendent of the Magnolia Soybean Products Co. mill, Greenville, Miss., died at a local hospital there from injuries sustained in an explosion at the mill Nov. 1. Cause of the blast was unknown. Damage to the plant was estimated at $20,000 by L. L. Ford, the manager.

◆ The Belzoni Oil Works, Belzoni, Miss., solvent extraction plant and warehouse was destroyed by fire Nov. 12. Damage was estimated at $150,000. The fire is believed to have started when a faulty electric wire caused a spark to ignite a trickle of the solvent. H. H. Gantz is manager. It is planned to rebuild the plant. They are soybean processors.

◆ A revised edition of Soybean Farming, 44-page illustrated booklet on soybean production, has been issued by the Soybean Crop Improvement Council of the National Soybean Processors Association, 3818 Board of Trade Bldg., Chicago 4, Ill. Many of the illustrations are new.

◆ Archer, monthly publication of Archer-Daniels-Midland Co., Minneapolis, Minn., in its November issue congratulates Dr. J. W. Hayward, director of ADM's nutritional research, for his honorary life membership in the American Soybean Association, which was awarded to him in September.

◆ *I. E. Johnson, his son Morris, and his grandson Joe II, of the Champaign, Ill., firm of farm managers, are featured in current advertising by Spencer Chemical Co. in leading farm magazines.*

◆ Ralston Purina Co., St. Louis, Mo., is again offering its research fellowship awards program for graduate students in land-grant agricultural and veterinary colleges, for the 1952-53 year. The amount of the fellowship is $1560 annually.

◆ Professor Harry B. Walker, Davis, Calif.; Dr. J. Brownlee Davidson, Ames, Iowa; and J. B. Wilson, Auburn, Ala., three outstanding authorities in the field of agricultural engineering, have been named consulting engineers for Dearborn Motors, Birmingham, Mich., National marketing organization for the Ford Tractor and Dearborn farm equipment.

CHANGES BY GLIDDEN

HARVEY L. SLAUGHTER

Three top executives of the Glidden Co. were named to new positions by Dwight P. Joyce, president.

Harvey L. Slaughter, regional director of the paint and varnish division in Reading, Pa., has been appointed general manager of Glidden's important Durkee Famous Foods division, succeeding George F. Atkinson, who has been named executive assistant to the president. H. F. Winger, regional director of the paint and varnish division in Chicago, will replace Slaughter in Reading.

Mr. Slaughter has been associated with Glidden for 6 years.

Atkinson joined Glidden in 1929 in the general accounting department. He was named Durkee general manager in 1949.

Winger, a native of Cleveland, became associated with Glidden in 1933 in Chicago as a salesman. He was appointed regional director in 1949.

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Give You These 8 Money-Saving Advantages!

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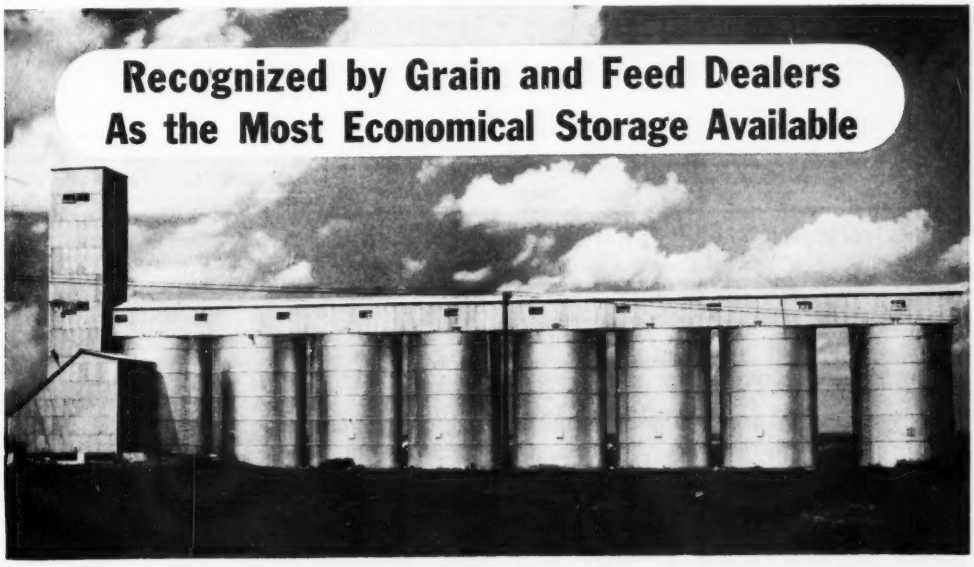
5. Actual service tests as long as 30 years prove them ideal for safe, efficient storage and handling of all small grains—wheat, corn, oats, barley, soya beans, flax, cotton seeds, peanuts, rice, coffee beans, etc.

6. Last years on end—none have ever worn out—not one has been demolished by tornado or cyclone.

7. Columbian's exclusive and important details of design continue to make these tanks superior leaders. Users invariably specify "COLUMBIAN" when additional storage is needed at their plant.

8. Easy way to erect, with detailed, easy-to-understand blue prints furnished so that tanks may be put up with any kind of labor—or we will provide supervisor for your own men—or a complete Columbian erection crew. Foundation specifications and blue prints are furnished to enable your local concrete contractor to build foundation.



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WASHINGTON DIGEST

By WAYNE DARROW
Washington Correspondent for The Soybean Digest

TRUCE? Should the Korean truce line order lead to a peace settlement the end of the year, U.S. depression would not follow. Defense production orders already in the slot would sustain the economy through 1952. That's the strongly held view of top government men.

The Administration has no intention of slackening the defense program no matter what happens in Korea. It would regard a Korean peace as only the first in a whole series of actions the Soviet would have to take before the U.S. would trust Russia. Secretary Acheson announced this policy in Paris recently.

Should apparent peace develop this winter, commodity prices might cool off a little. The price tendency might be slightly down instead of slightly up. Government economists think any market effects would be temporary, and mostly psychological. But they're guessing, and admit it. All they're sure of is that there won't be a 1952 depression. The year to watch would be 1953 should real peace come next year.

MEAL OUTLOOK. Meal is the Cinderella in the fairy story of soybeans. Oil, the glamor sister, used to get the acclaim, and brought home the big end of the family pay check. Meal is the bigger bread winner now. It probably will be a steady and substantial earner for years, no matter what oil does.

This is indicated by USDA analyses of the feed and livestock situation. Oil meals and feed grains are bound to be in tight supply for several years.

The pinch will be greatest with corn, oats, grain sorghums and barley because there are no adequate substitutes for them.

Oil meals will be some 8 percent short of prospective demand four years from now, but this situation can be met by the simple expedient of feeding at a lower rate per animal unit. At a rate about two pounds less per unit than the coming year, and at least eight pounds less than would be used if the supply were available.

The outlook is for high corn and bean prices for at least four years. USDA doesn't say it, but its studies indicate that only some unforeseen and dramatic development would alter the picture. Such as a series of unusually large corn and bean crops, or depressions and heavy livestock liquidation. The big crops can't be counted on, and economists agree that depression isn't in sight.

OPS is preparing for a lengthy struggle with feed prices. It has rigged up a feeding value chart as a guide for setting price ceilings. All feed price ceilings are to be tied as closely as possible to the price of corn at parity.

The two fixtures in the OPS feed price ceiling schedule are corn at parity, and soybean oil meal at the present level of $74 a ton, bulk, Decatur. All the rest will be fitted to these two prices.

CEILINGS. If and when set, the corn ceiling will be close to $2 a bushel for No. 3 yellow, Chicago. This would allow about a 2-cent cushion to take care of possible increases in parity by next summer.

OPS officials think $2 Chicago corn and $74 Decatur meal are in fair relationship with each other. At least, they can make out a good case for what they've decided on already. They won't put the corn ceiling above parity and they don't want to disturb the bean meal ceiling.

They would like to lower the cottonseed meal ceiling but cannot do so due to a technicality in the law. It will probably be left about as it is.

Morrison's Feeds and Feeding is the chief basis used by OPS in working up its feed price relationships. This indicates that these ceilings would be about in line: $2 Chicago corn, $74 Decatur bean meal, $71 Memphis cottonseed meal, $1.07 a bu. Chicago No. 2 oats, and $3.50 a cwt. Kansas City No. 2 grain sorghums.

All these comply with the law except oats, which has a legal minimum ceiling about 7 cents a bushel above its feeding value as related to corn and cottonseed meal, as stated above. OPS will not raise the corn ceiling minimum to put it in line with oats. Instead it plans to set the oats ceiling as low as the law allows and hope for the best.

Present official expectancy is for corn to reach the ceiling level this winter, or in early spring at the latest. Oat prices may reach ceilings also. Wheat and grain sorghum prices aren't expected to go that high.

This figuring may not be right, but that's the way officials view markets now. They are watching feed prices as a doctor does a fever chart, with one big symptom uppermost in their

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thoughts—corn. Once corn hits the ceiling, OPS aims to move into the feed price field. OPS will have tailored ceilings on all mill by-products in about 30 days.

EXPORTS. Official thinking about 1951-52 bean exports has changed a little recently. Published estimates still put them at "about" the level of 1950-51 which turned out to be the equivalent of 78 million bushels in round figures. The export volume is now estimated at around 60 million bushels in this marketing year.

The biggest reduction is expected in shipments to Spain, which took oil equivalent to 18 million bushels last year. Italy, another large importer, will take less also. Olive crops in these countries were short in 1950, but are sizable this year.

Looking ahead four years, U. S. bean exports are likely to be somewhere near the volume of 1949-50, as it appears now. Possibly the equivalent of 40 million bushels of whole beans, divided 20-15-5 between oil, beans and meal. Last year the proportion was about 42½-28-7½.

The Japanese market is a precarious one. It likely will hold for another year, but the Japs are bound to get their beans from Manchuria before long. They're pressing the matter. What's lost in the Far East will be partly regained in Europe, so officials think.

If this unofficial four-year export projection proves true, one net result would be 375,000 tons more bean meal for U.S. livestock. Even then, the total supply of all oil meals will probably be 700,000 tons short of U.S. demand.

This assumes soybean crops about the size of the last two years, cotton crops of 14 million bales, and about the same supply of linseed, peanut and copra meals as now.

Soybean crops 35 million bushels larger than this year's would be required to furnish in 1955-56 enough oil meal to match the uptrend in livestock numbers, and the increasing rate of feeding oil meals per animal.

This assumes that total oil meal consuming animals (work stock excluded) will increase from the present 173.5 million units to 184.5 million in four years. If the average rate of feeding per unit increases as in the last four years, it would require 109 pounds per animal instead of the present 102.6 pounds. Prospective oil meal supplies in 1955-56 will furnish only 100.6 pounds per animal.

GOALS. USDA is plagued by this problem in setting 1952 production goals. More corn and beans are needed. As far as they can see, if you get more corn you get less beans, and vice versa. They're setting corn goals at 89 million acres, and beans at 13 million acres. They doubt they'll reach either goal—corn under and beans over—probably 14 million.

Soybean oil meal feeding between classes of livestock divides about this way: Poultry and hogs about 26 percent each, dairy cattle 30 percent, and all others 18 percent.

The estimates are derived from USDA figures for 1948-49. The breakdown for corn that is fed: Hogs 55.1 percent, poultry 18.7 percent, beef cattle 11.8 percent, dairy cattle 9.4 percent, all others 5 percent.

USDA'S estimate of animal units next Jan. 1: Hogs 73.8 million, poultry 51.3 million, dairy 27.2 million, beef 20.2 million, horses and mules 7.6 million, sheep and lambs 1.1 million.

These are feed consuming animal units, with each unit supposed to consume the same amount of total feed no matter what the class of livestock. Units of hogs and work stock are expected to decline the next few years, and all the others to increase, especially beef animal units. From the soybean standpoint, the decline in hog numbers will be more than offset by increases in the others.

Market Street

We invite the readers of THE SOYBEAN DIGEST to use "MARKET STREET" for their classified advertising. If you have processing machinery, laboratory equipment, soybean seed, or other items of interest to the industry, advertise them here.

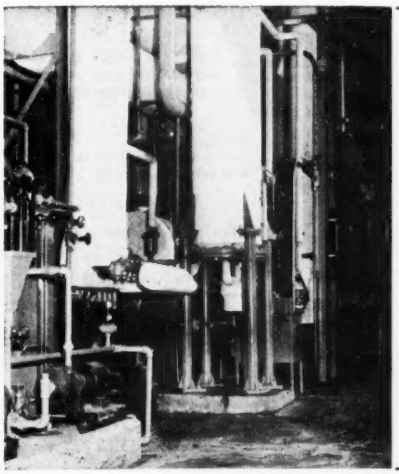
Rate: 10c per word per issue.
Minimum insertion $2.00.

WANTED—SMALL HEXANE SOLVENT plant, 25 or more tons daily capacity. Reply Soybean Digest, Box 319p, Hudson, Iowa.

FOR SALE — OIL MILL EQUIPMENT Anderson Expellers, French Screw Presses all models, as is or rebuilt for specific materials. Pittock and Associates, Glen Riddle, Penna.

Wanted—Good used small or medium sized Anderson or French oil expellers. Write H. R. Schmidt, 210 South Pine Street, Newton, Kansas.

FOR SALE: COMPLETE PROCESSING plant and equipment. Consists of Grain Elevator with Track Shed, Expeller Room (including two five-high *French Mechanical Screw Presses*), Combination Warehouse and Sacking Room, Boiler Plant, Tracks and Track Scale. Complete description of plant site, plant, and equipment furnished upon request. Address P. O. Box 1007, Decatur, Ill.



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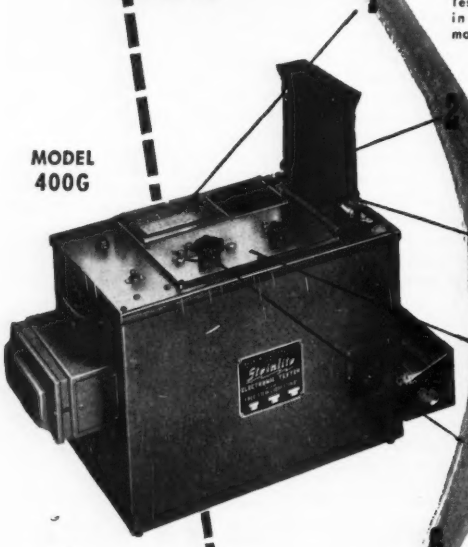

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2. "Memory-refresher" instruction panel on the top enables even inexperienced workers to test grain quickly.
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8. New Voltage Stabilizer prevents fluctuation, insures accurate reading.
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10. Larger, easy-to-read charts help you get an accurate moisture analysis faster.
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IN THE MARKETS

Beans, Meal Strong

November showed continued strength in soybeans and soybean oil meal, and easiness in soybean oil. Soybean prices were highest for some months. Meal pressed against the $74 ceiling all month.

Market sources were inclined to believe that heavy trading in soybean oil could not take place so long as prices for soybean oil continued low compared with a strong bean market. Processors were not making heavy offerings of soybean oil.

Largest single influence on the market for the month was the government's drastic cut in its cotton crop estimate, which meant smaller prospective supplies of cottonseed oil and meal. The official estimate of the soybean crop was a little higher and the corn crop was not cut as much as expected but these did not offset the reduction in cotton.

A number of processors reported a good production of soybean oil meal, but almost all was being used to cover back orders. Soybean oil meal for shipment through January was almost unavailable.

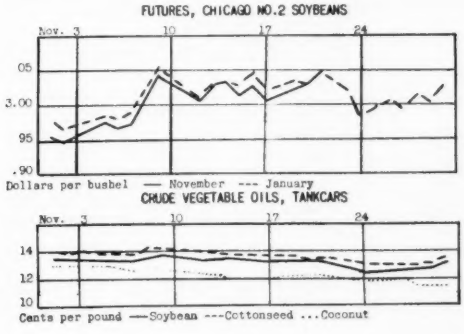
Export of 3,000 tons of soybean oil meal to Holland was reported. It was also reported that Germany had allocated 25 million dollars to buy soybeans, and there was talk of large Japanese buying in the offing.

November No. 2 soybeans opened at $2.95½ for the month and closed at $3.05, the high. January futures closed for the month at $3.02½.

Crude soybean oil opened at 13½c for the month and closed at 12½. High was 13¾c Nov. 9 and low was 12½ Nov. 24. Close for the month was 13c.

Crushings of soybeans for oil October 1950 through September 1951 were nearly 30 percent above the previous record and totaled 252 million bushels. Exports of nearly 28 million bushels were more than double those for 1949-50. Supplies of soybeans for 1951-52, from present indications, will amount to 275 million bushels, or the second largest on record.

Supplies of soybeans for the 1950-51 season were estimated at 290 million bushels. However, disappearance during the season totaled 304 million bushels. Included in this disappearance were seed requirements of 18 million, exports of 28 million, record crushings of 252 million, farm use for feed of over 2 million, and a carryover of 4 million bushels. With the early maturing of the 1951 crop a somewhat larger quantity of new soy-



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beans were crushed this September than in September of 1950.

The crop reporting board of the Bureau of Agricultural Economics has stated that these data are being analyzed and will be considered in revising the 1950 production estimated which will be published in December. In addition to the soybeans exported last season 475.4 million pounds of soybean oil, which is equivalent to 54 million bushels of soybeans, were exported. This compares with 282.9 million pounds, equivalent to 32 million bushels exported in the 1949-50 season.

MEMPHIS SOYBEAN OIL MEAL FUTURES NOV. 30*

Bulk—Decatur (Contract 100 tons). Dec., flat 74.00; Jan., 73.90@74.00; Mar., 72.85@73.30; May, flat 72.85; July, 72.65@73.00; Oct., 67.50@68.50.

CHICAGO SOYBEAN OIL MEAL FUTURES CLOSE NOV. 30*

SOYBEAN MEAL—(per ton)—Dec., 74.00b; Jan., 74.00b; Mar., 73.25b-73.40a; May, 73.00b-73.25a; July, 73.00b-73.25a; Sept., 68.00b-68.25a.

NEW YORK SOYBEAN OIL FUTURES CLOSINGS NOV. 30*

Old Contract

Oct., '52, 13.75n; Nov. 13, 13.50n.

New Contract

Dec., 13.05n. No sales. Other months not quoted.

CHICAGO SOYBEAN OIL FUTURES CLOSINGS NOV. 30*

Dec., 13.00b-13.10a; Jan., 13.30b-13.40a; Mar., 13.65b-13.68a; May, 13.86b-13.88a; July, 14.12b-14.14a; Sept., 14.20b-14.23a; Oct., 13.85b-14.10a.

*-Reported by Chicago edition of the Wall Street Journal. n-Asked.

FUTURES TRADING AND OPEN CONTRACTS IN SOYBEAN OIL MEAL ON MEMPHIS MERCHANTS EXCHANGE CLEARING ASSOCIATION (IN TONS)

	Volume of Trading	Open Contracts		Volume of Trading	Open Contracts
Oct. 29	8,500	181,400	Nov. 14	33,500	186,000
Oct. 30	12,800	180,900	Nov. 15	16,400	185,900
Oct. 31	8,000	184,400	Nov. 16	13,900	181,500
Nov. 1	9,300	189,600	Nov. 17	6,200	179,100
Nov. 2	5,900	191,400	Nov. 19	4,900	178,700
Nov. 3	3,700	192,800	Nov. 20	25,600	178,700
Nov. 5	4,800	192,600	Nov. 21	14,800	176,100
Nov. 6	5,400	194,500	Nov. 23	7,200	174,500
Nov. 7	10,100	193,400	Nov. 24	1,700	175,200
Nov. 8	10,700	190,900	Nov. 28	8,200	169,900
Nov. 9	15,100	187,600			
Nov. 10	3,100	188,200	Total for 23 days reported	237,600	
Nov. 13	7,800	187,700			

● PROCESSING OPERATIONS. Reported by Bureau of Census, Department of Commerce, for August, September.

PRIMARY PRODUCTS EXCEPT CRUDE OIL, AT CRUDE OIL MILL LOCATIONS: PRODUCTION, SHIPMENTS AND TRANSFERS AND STOCKS, SEPTEMBER 1951—AUGUST 1951

Products	Production		Shipments and transfers		End of month stocks	
	Sept. 1951	August 1951	Sept. 1951	August 1951	Sept. 30, 1951	Aug. 31 1951
SOYBEAN:						
Cake and meal†	344,147	440,644	377,069	480,767	35,505	68,427
Lecithin‡	1,401,287	1,760,344	1,296,671	1,303,865	1,946,591	1,841,975
Edible soy flour, full fat†	290	658	528	608	99	337
Edible soy flour, other†	3,985	4,171	4,254	4,011	847	1,116
Industrial soy flour†	1,584	2,351	1,376	2,344	556	348

† Unit of measure in tons. ‡ Unit of measure in pounds.

SOYBEANS: RECEIPTS, CRUSHINGS AND STOCKS AT OIL MILLS, BY STATES, SEPTEMBER 1951—AUGUST 1951
(Tons of 2,000 pounds)

State	Receipts at mills		Crushed or used		Stocks at mills	
	Sept. 1951	Aug. 1951	Sept. 1951	Aug. 1951	Sept. 30, 1951	Aug. 31, 1951
U. S.	278,398	*174,213	441,643	*563,923	128,217	*291,462
Arkansas	3,707	1,130	4,107	9,970	1,877	2,277
Illinois	144,210	91,968	194,629	226,219	56,241	106,660
Indiana	44,317	(1)	43,247	47,726	21,927	20,857
Iowa	22,763	* 35,633	71,437	87,569	10,118	* 58,792
Kansas	2,425	3,239	1,919	8,145	1,563	1,057
Kentucky	9,317	(1)	15,092	16,429	3,668	9,443
Minnesota	9,226	16,829	21,166	25,359	314	12,254
Missouri	18,088	3,430	18,621	19,709	14,764	15,297
Nebraska	(1)	(1)	(1)	(1)	(1)	(1)
North Carolina	(1)	(1)	(1)	3,090	110	(1)
Ohio	19,056	* 6,322	52,552	80,435	7,699	* 41,195
Oklahoma	(1)	(1)			(1)	(1)
Texas	(1)	(1)		(1)	(1)	(1)
All other	5,289	* 15,662	18,873	* 39,272	9,936	* 23,630

* Revised. (1) Included in "All other" to avoid disclosure of individual operations.

SOYBEAN PRODUCTS: PRODUCTION AND STOCKS AT OIL MILL LOCATIONS, BY STATES, SEPTEMBER 1951—AUGUST 1951

State	Crude oil (thousand pounds)				Cake and meal (tons)			
	Production		Stocks		Production		Stocks	
	Sept. 1951	Aug. 1951	Sept. 30, 1951	Aug. 31, 1951	Sept. 1951	Aug. 1951	Sept. 30, 1951	Aug. 31, 1951
U. S.	148,658	187,910	42,931	44,503	344,147	440,644	35,505	68,427
Arkansas	1,371	2,947	446	823	3,424	8,196	546	1,841
Illinois	67,957	78,828	18,518	14,771	146,183	170,049	10,670	28,972
Indiana	14,350	16,045	7,023	3,871	33,777	37,944	2,778	(1)
Iowa	22,871	28,981	4,445	5,782	57,126	72,488	8,438	6,464
Kansas	653	2,651	386	967	1,508	6,643	(1)	1,916
Kentucky	5,413	5,746	632	743	11,609	12,663	322	595
Minnesota	6,791	7,915	2,534	3,518	17,186	20,139	793	(1)
Missouri	5,668	5,959	1,264	1,462	15,109	16,336	1,640	1,657
Nebraska	(1)	(1)	(1)	409	(1)	(1)	(1)	(1)
N. Carolina	(1)	851	(1)	(1)	(1)	2,470	507	2,322
Ohio	17,441	26,084	3,672	5,282	42,527	63,494	6,172	2,552
Oklahoma							(1)	88
Texas		(1)	(1)	(1)		(1)	(1)	1,010
All other	6,143	11,901	3,981	6,875	15,698	30,222	3,639	21,010

(1) Included in "All other" to avoid disclosure of individual operations.

● **USAGE OF SOYBEAN OIL MEAL.** Factory production of crude soybean oil totaled 148,658,000 lbs. in September compared with 187,910,000 lbs. in August, reports Bureau of the Census. Factory production of the refined oil totaled 130,391,000 lbs. in September; 154,263 lbs. in August.

Factory consumption of crude soybean oil totaled 139,687,000 lbs. in September; 164,197,000 lbs. in August. Consumption of refined soybean oil was 127,916,000 lbs. in September; 148,240,000 lbs. in August.

Factory and warehouse stocks of crude soybean oil totaled 90,907,000 lbs. Sept. 30; 107,993,000 lbs. Aug. 31. Stocks of refined soybean oil were 79,870,000 lbs. Sept. 30; and 85,236,000 lbs. Aug. 31.

Usage of crude soybean oil during September: soap 94,000 lbs.; paint and varnishes 253,000 lbs.; lubricants and greases 29,000 lbs.; other inedible uses 1,403,000 lbs.

Usage of refined soybean oil in September: shortening 33,369,000 lbs.; margarine 8,228,000 lbs.; other edible uses 5,466,000 lbs.; soap 26,000 lbs.; paint and varnish 3,531,000 lbs.; other inedible products 6,219,000 lbs.

Usage of hydrogenated soybean oil in September: shortening 14,732,000 lbs.; margarine 25,853,000 lbs.; other edible products 270,000 lbs.; inedible products 5,000 lbs.

● **INSPECTIONS.** Inspected receipts of soybeans during October, the first month of the 1951-52 season, were relatively heavy and well above the average for the month, though somewhat below those of Oct. 1949, according to reports to the Department of Agriculture.

October receipts totaled 40,546 cars compared with 39,130 cars for Oct. 1950, 44,153 for Oct. 1949 and 26,697 cars for the 10-year 1940-49 October average.

October marketings of soybeans were of lower quality than average due in part to unfavorable harvesting weather. Only 70 percent graded No. 2 or better in October, the lowest since 1942, and compares with 74 percent last year and 86 percent for October 1949.

Inspections of soybeans in October included the equivalent of 1,199 cars inspected as cargo lots and 919 cars as truck receipts.

● **SHORTENING.** Standard shortening shipments reported by the Institute of Shortening and Edible Oils, Inc., in pounds.

Oct. 27	5,753,135
Nov. 3	5,126,411
Nov. 10	5,569,063
Nov. 17	5,383,942
Nov. 24	4,475,766

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● **STOCKS.** About 4 million bushels of old soybeans remained in all storage positions on Oct. 1, according to reports assembled by the Bureau of Agricultural Economics. This is the largest carryover since 1947.

This year's carryover includes 2,555,000 bushels on farms and 254,000 bushels at interior mills, elevators and warehouses, as estimated by the Crop Reporting Board. Commercial stocks of old soybeans at terminals were reported at only 670,000 bushels by the Production and Marketing Administration. Stocks at processing plants, as reported to the Bureau of the Census, included mostly new crop soybeans on October 1; that total was adjusted to 552,000 bushels of old soybeans on the basis of information obtained by the Crop Reporting Board.

Disappearance of old soybeans in the July-September quarter of 1951 is computed at about 47.5 million bushels. For the same period, reports of processors to the Bureau of the Census indicate that nearly 51.3 million bushels were processed, but this includes a significant tonnage of 1951-crop soybeans. The supply of soybeans on Oct. 1, 1950, was estimated at nearly 290 million bushels (1950 crop plus carryover).

STOCKS OF SOYBEANS, OCT. 1, 1951, WITH COMPARISONS

Position	Oct. 1 1949	Oct. 1 1950	July 1 1951	Oct. 1 1951
	Thousand Bushels			
*On Farms	2,147	1,204	9,620	2,555
‡Terminals	462	920	4,201	670
§Processing Plants	¶285	¶502	33,367	¶552
†Int. Mill, Elev. & Whses.	213	244	4,362	254
Total	3,107	2,870	51,550	4,031

*Reported by Crop Reporting Board.
‡Reported by Grain Branch P.M.A.
§Reported by Processing Plants.
††Reported by Crop Reporting Board. All off-farm storages no otherwise designate.
¶Adjusted to stocks of **old** soybeans; total Oct. 1, 1951 was 4,274,000 bushels.

OFF-FARM† STOCKS OF SOYBEANS, OCT. 1, 1951, WITH COMPARISONS

State	Oct. 1 1950	July 1 1951	Oct. 1 1951	State	Oct. 1 1950	July 1 1951	Oct. 1 1951
	Thousand bushels				Thousand bushels		
Ohio	147	5,683	162	Kans.	1	546	111
Ind.	11	3,728	53	N. C.	3	6	4
Ill.	908	15,518	598	Ky.	0	1,015	34
Minn.	78	1,716	68	Ark.	0	683	5
Iowa	239	6,609	217	All Other	101	5,131	211
Mo.	178	1,295	13	U. S.	1,666	41,930	1,476

†Includes stocks at processing plants, as enumerated by the Bureau of the Census; commercial stocks at terminals, reported by Grain Branch, P.M.A.; and stocks in interior mills, elevators and warehouses, estimated by the Crop Reporting Board.

● **FEEDSTUFF SUPPLIES.** Supplies of by-product feedstuffs for 1951-52 from present indications may be about the same as the record quantity of 18.2 million tons consumed last season when the record production of soybean meal more than offset the sharp drop in the output of cottonseed meal, according to the U. S. Department of Agriculture. Despite the large prospective supplies, seedstuffs prices at the middle of November averaged 22 percent above a year ago reflecting higher grain prices and larger livestock numbers.

Based on current estimates of grain and oilseed production and the average outturn of feeds from these commodities, supplies of feedstuffs for the 1951-52 season are estimated at 18.2 million tons. Supplies of commercial by-product feeds for the 1950-51 season, after allowing for exports, imports, and changes in stocks, amounted to 18.2 million tons compared with 16.9 million in 1949-50, and 14.5 the 10-year (1939-48) average. The number of grain-consuming animal units to be fed in 1951-52 are estimated at 181.0 million. This compares with 176.8 million fed last year, 170.1 million in 1949-50, and 168.6 million the 10-year average. Based on these estimates the supply of feed per animal unit this season is expected to total 202 pounds. While this is below the 206 pounds per animal unit fed last year it is a little above the previous four years when livestock numbers were small.

Supplies of oilseed cake and meal for feed in 1951-52 are expected to be a little above the record of 8.6 million tons fed last season. Increased cottonseed meal supplies are expected to more than offset somewhat smaller soybean oil meal supplies. Quantity of soybean oil meal available for feed last season totaled 5.7 million tons as against 4.5 million the previous year and the 1951-52 indicated supplies of 5.4 million tons. An increase of 600,000 tons of cottonseed meal for 1951-52 over last season is indicated by the November estimate of the cotton crop. Supplies of linseed meal for 1951-52 are currently estimated at 650,000 tons or about 82,000 tons below the amount available for 1950-51. Peanut meal and copra meal supplies for 1951-52 are indicated at 100,000 and 200,000 tons respectively compared with 123,000 and 215,000 tons available for 1950-51. Exports of oilseed meals in 1950-51 totaled 247,510 tons compared with 226,347 in 1949-50 and 348,000 tons in 1948-49.

● **EXPORTS.** U. S. exports of soybeans and soybean oil for September, as reported by the Office of Foreign Agricultural Relations, U. S. Department of Agriculture.

Soybeans	86,167 bu.
Soybean oil (crude)	31,582,324 lbs.
Soybean oil (refined)	16,694,966 lbs.

Converted to a soybean equivalent basis the exports for September amounted to 5,124,919 bushels.

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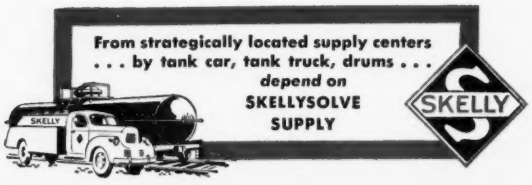

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